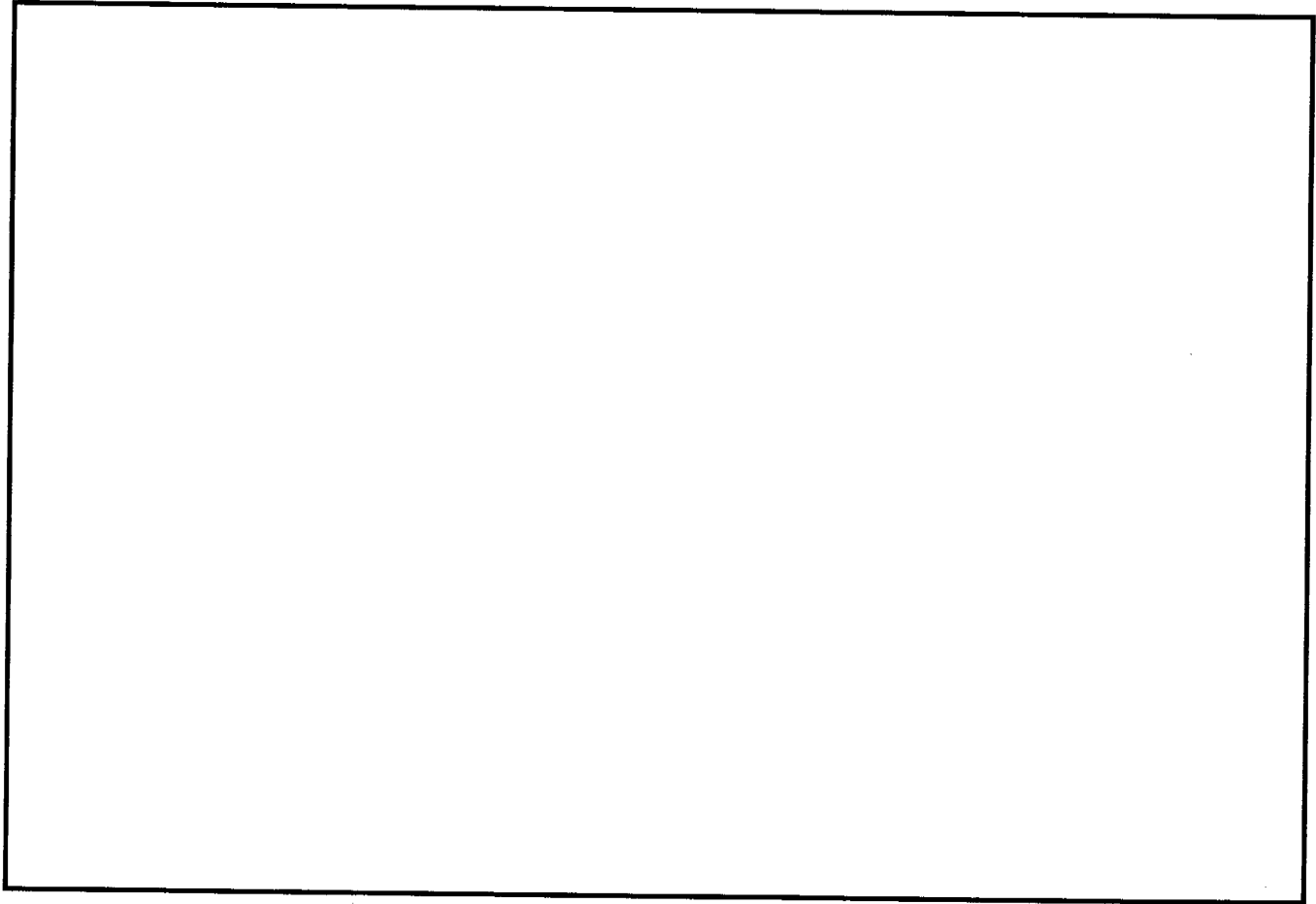


Phase I and II Archaeological Survey
of Five Proposed Borrow Pits and Wetland Replacement Areas
for the State Route 1 Corridor, Kent County, Delaware



by

David J. Grettler, Brian H. Seidel, and Jack F. Kraft

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Department of Anthropology
Center for Archaeological Research

Delaware Department of Transportation Archaeology Series No. 111



Delaware Department
of Transportation

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U.S. Department
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**PHASE I AND II ARCHAEOLOGICAL SURVEY
OF FIVE PROPOSED BORROW PITS AND WETLAND REPLACEMENT AREAS
FOR THE STATE ROUTE 1 CORRIDOR, KENT COUNTY, DELAWARE**

DelDOT Project 89-110-01

DelDOT Archaeological Series No. 111

FWHA Federal Aid Project F-1005 (15)

By

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**Eugene E. Abbott
Director of Planning**

ABSTRACT

A Phase I and II survey of five proposed borrow pit and wetland replacement areas in Kent County, Delaware was undertaken to locate and identify significant archaeological resources. Approximately 490 acres in five separate parcels were surveyed. A total of 17 archaeological sites were located by Phase I testing. Of these sites, eleven were prehistoric and four were historical. Two sites had both prehistoric and historical components. One of the two multicomponent sites, the Pollack site (7K-C-203), was a known National Register site. Phase II testing at 7K-C-203 identified the remains of two late seventeenth and early eighteenth century farmsteads and seven distinct areas of prehistoric occupation. The prehistoric occupation of these seven loci ranged from the late Paleo Indian Period (ca. 7000 B.C.) to the Woodland II Period (A.D. 1000-A.D.1650). Artifacts recovered indicated a variety of activities ranging from hunting and gathering sites to micro-band base camps. Phase II testing was not undertaken at any of the other sixteen sites because construction design changes to State Route 1 determined that the Pollack site would satisfy all of the current borrow pit and wetlands replacement area needs of this segment of State Route 1.

DelDOT Archaeological Series Index Information

This form is intended to provide information on the contents of this volume for indexing. It is also intended for researchers to use to check the research methods and topics included in this volume.

Report Title: **PHASE I AND II ARCHAEOLOGICAL SURVEY OF FIVE PROPOSED BORROW PITS AND WETLAND REPLACEMENT AREAS FOR THE STATE ROUTE 1 CORRIDOR, KENT COUNTY, DELAWARE**

DelDOT Report Number: **111**

Level of Investigations: [Phase I, II, III, Planning Survey, Specialized Study]

PHASE I AND II

Basic Time Periods Covered:

<input type="checkbox"/>	All prehistoric
<input type="checkbox"/>	Mainly prehistoric, some historic
<input checked="" type="checkbox"/>	Equal coverage of prehistoric and historic
<input type="checkbox"/>	Mainly historic, some prehistoric
<input type="checkbox"/>	All historic

Site Contexts:

	Prehistoric	Historic
Plow zone/disturbed surface soils	X	X
Intact features	X	X
Buried artifact-bearing strata		

List up to five major time periods or site types

1. **ALL PREHISTORIC TIME PERIODS**
2. **BASE CAMPS**
3. **PROCUREMENT SITES**
4. **SEVENTEENTH AND EIGHTEENTH CENTURIES**
5. **FARMSTEADS**

List up to eight major topics covered in Conclusions and Discussions of Results

1. **REGIONAL SETTLEMENT PATTERNS**

2. WOODLAND I RESIDENTIAL STABILITY

3. EIGHTEENTH CENTURY FARMSTEADS

Specialized Analyses Undertaken

	Prehistoric	Historic
Blood Residue		
Ceramic Chronology	X	X
Ceramic Vessel Surface Alterations		
Cordage Twists from Ceramic Impressions		
Faunal Analysis		
Flake Attributes		
Floral Analysis		
Flotation		
Geomorphology and Pedology	X	
Glass Analysis		
HABS Documentation		
HAER Documentation		
Historic Architecture		X
Informant Interviews		X
Leather Analysis		
Miller Ceramic Index		
Mortar Analysis		
Palynology		
Projectile Point Chronology	X	
Projectile Point Function	X	
Radiocarbon Dates		
Soil Chemistry		
Spatial Distribution of Artifacts	X	X
Stone Tool Functional Analysis		
Wood Identification		

List up to 5 other specialized analyses not listed above:

NOT APPLICABLE

Geographic Area Covered

☐ New Castle County
☒ Kent County
☐ Sussex County
☐ All State

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COVER ILLUSTRATION: Aerial view of the Pollack Borrow Pit and Wetland Replacement Area. View is looking east toward the confluence of Alston Branch and the Leipsic River. Excavated area in the upper central portion of the site is site area 7K-C-203D. The proposed borrow pit and wetland replacement area extends from the Route 1 Right-of-Way in the foreground to the Leipsic River. Archaeological sites were present along the entire wooded margin of the field.

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INTRODUCTION

The purpose of this report is to describe the Phase I and II archaeological survey of five proposed areas of borrow pit and wetland replacement sites in Kent County, Delaware. Borrow pit and wetland replacement was proposed in these five areas as part of ongoing efforts to mitigate the environmental impact of the construction of Delaware State Route 1, a multilane, limited access road extending 45 miles from I-95 in New Castle County to Dover in Kent County. The location of the proposed State Route 1 alignment and the five proposed borrow pit and wetland replacement areas are shown in Figure 1.

The five proposed borrow pit and wetland replacement areas were surveyed by the University of Delaware Center for Archaeological Research (UDCAR). Fieldwork was conducted from the fall of 1990 to the spring of 1991. The University of Delaware Center for Archaeological Research undertook this survey for the Delaware Department of Transportation (DelDOT) and the Federal Highway Administration (FHWA) for compliance under section 106 of the National Historic Preservation Act of 1966.

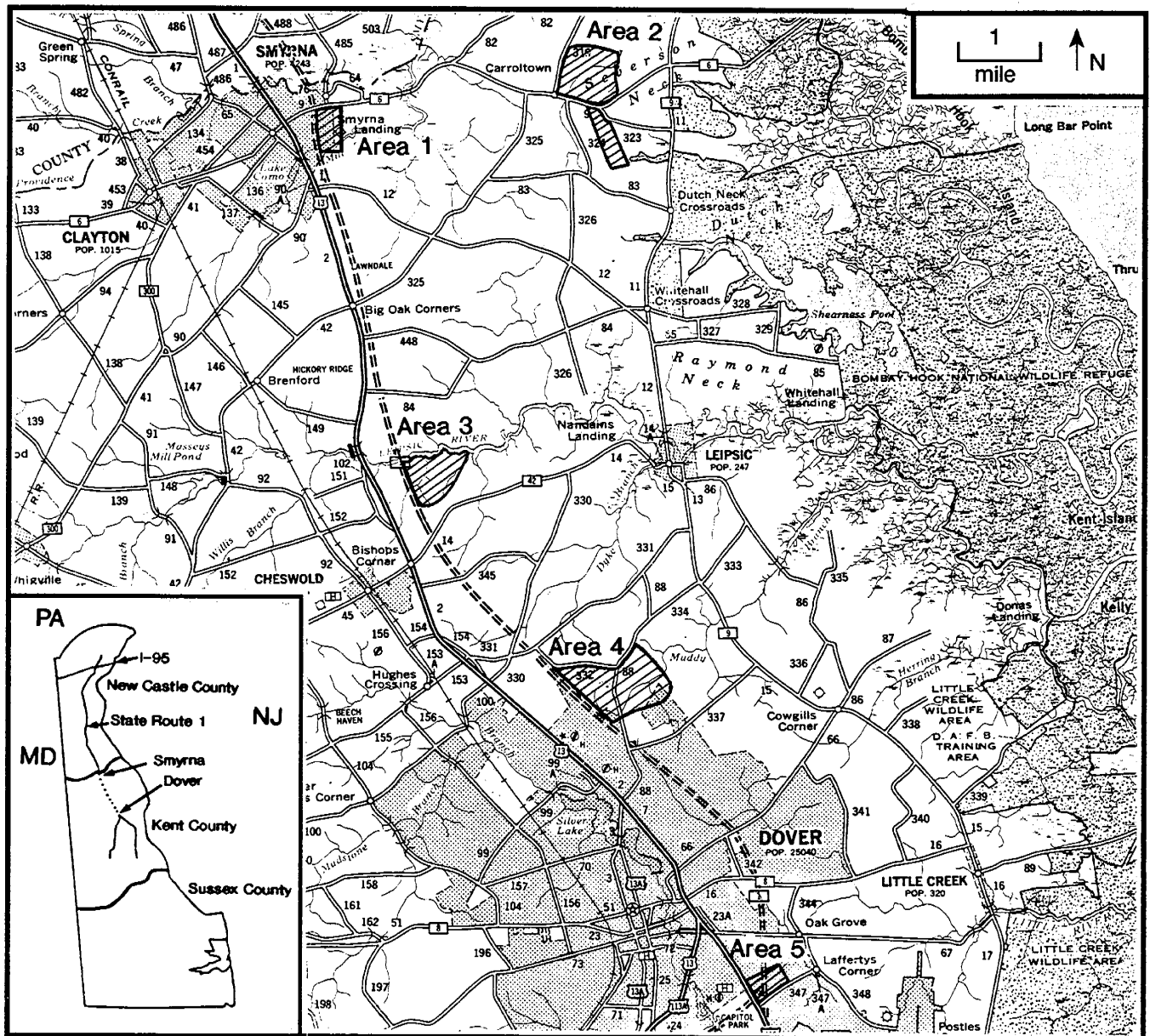
The purpose of the survey was to locate and identify cultural resources which may be adversely affected by proposed borrow pit and wetland replacement activities. The five project areas ranged in size from 2.5 to over 300 acres. Each area was defined by legal and physical boundaries. A total of approximately 490 acres was surveyed.

ENVIRONMENTAL SETTING, REGIONAL PREHISTORY, AND REGIONAL HISTORY

All five proposed borrow pit and wetland replacement areas are located between Smyrna and Dover, Delaware. Areas 1 and 2 are located in the Upper Coastal Plain and Areas 3, 4, and 5 are located in the Lower Coastal Plain (Figure 2). The environmental setting, regional prehistory, and regional history of this area has been fully presented in numerous works (Custer et al. 1984; Custer and Bachman 1986; Custer, Bachman, and Grettler 1987; Bachman, Grettler, and Custer 1988; and Grettler et al. 1991a).

FIGURE 1

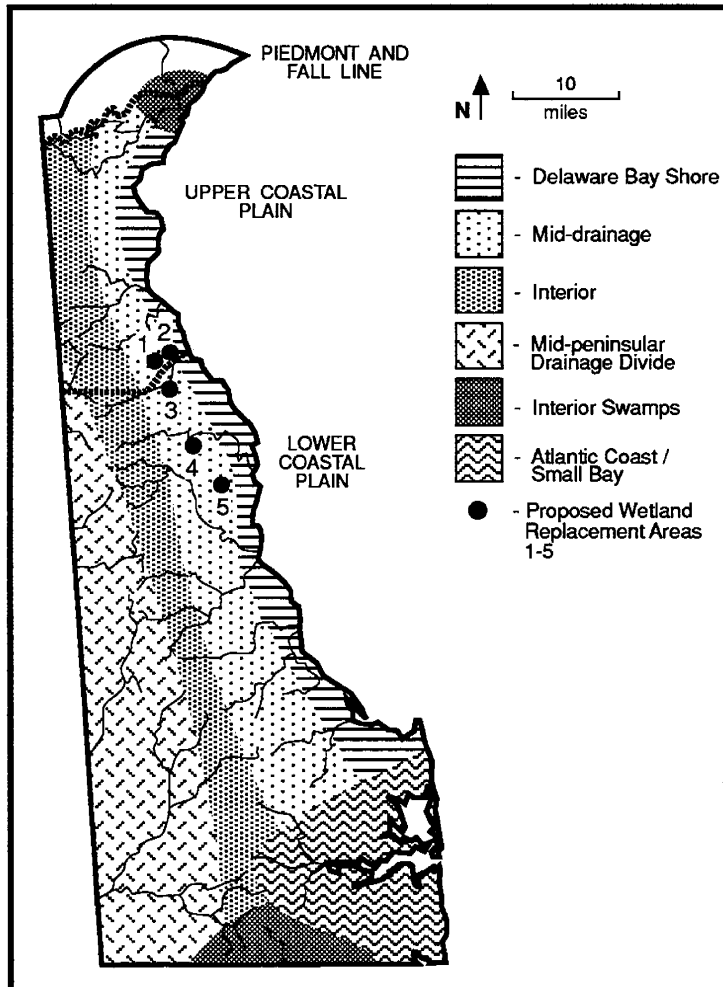
Location of Proposed State Route 1 Right-of-Way and Five Proposed Areas of Borrow Pit and Wetland Replacement



RESEARCH DESIGN

The primary goal of the Phase I survey was the simple location and identification of cultural resources in the proposed State Route 1 right-of-way (ROW). As such, it is difficult to link the Phase I study with an explicit research design. However, the site location data can be used to test predictive models of site locations developed in earlier planning studies of the Route 13 Corridor (State Route 1)

FIGURE 2
Delaware Physiographic Zones



(Custer et al. 1984; Custer, Bachman, and Grettler 1986, 1987). More detailed discussions of the predictive models are also provided in the Phase I/II research plan (Custer, Bachman, and Grettler 1987). A brief discussion of specific site location predictions by time periods is noted below.

During the Paleo-Indian Period (ca. 12,000 B.C. - 6500 B.C.), settlement patterns were focused upon areas with either readily available crypto-crystalline outcrops or poorly drained swamps (Custer, Cavallo, and Stewart 1983). Paleo-Indian sites related to lithic sources are not expected in the study area. However, game-attractive swamps or bogs at ephemeral streams and major drainages are located in the project area

and they may be the locations of Paleo-Indian procurement sites. Figure 3 includes potential Paleo-Indian site locations in relation to all five proposed borrow pit and wetland replacement areas.

Archaic Period (ca. 6500 B.C. - 3000 B.C.) settlement patterns in central Delaware are similar to those of the Paleo-Indian Period. Therefore, the potential Paleo-Indian site locations shown in Figure 3 are also potential Archaic Period procurement site locations.

Settlement patterns became more diversified during the Woodland I Period (ca. 3000 B.C. - A.D. 1000). The project areas were near some of the greatest social complexity recorded on the Delmarva Peninsula for this time period. A few large base camps from several cultural complexes are located near the project areas and this kind of site as well as related small base camps, procurement-staging sites, and

FIGURE 3

Predicted Paleo-Indian, Archaic, and Woodland I Site Locations

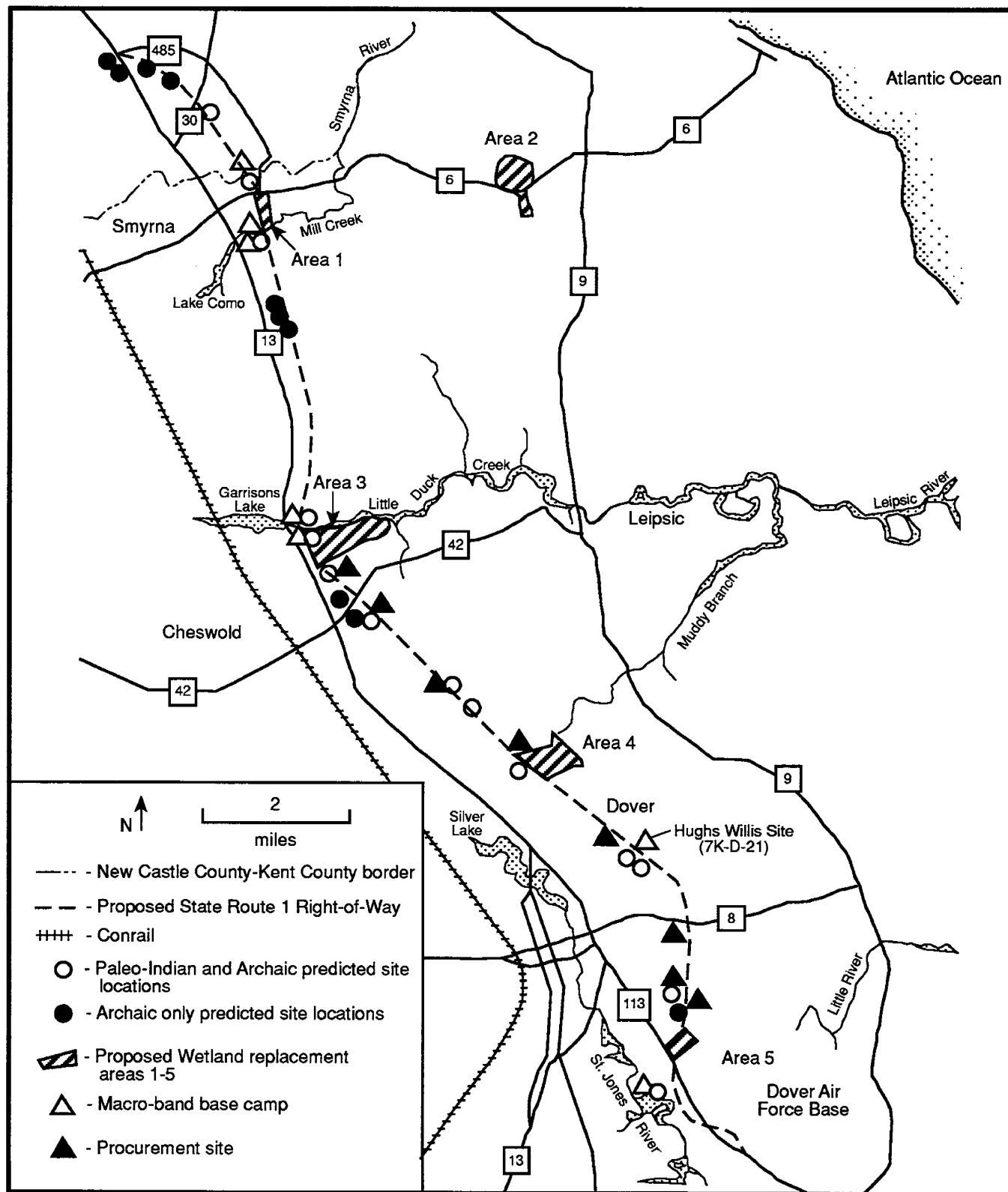
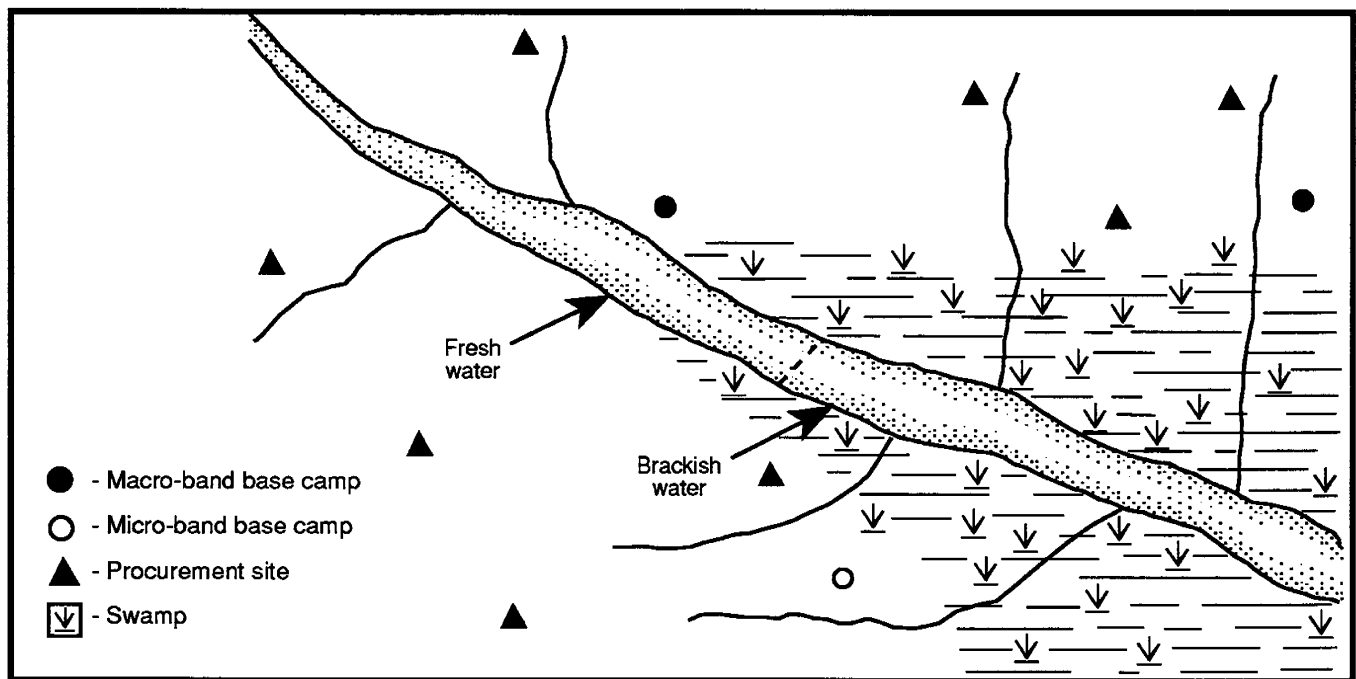


FIGURE 4
Woodland I Basic Mid-Drainage Settlement Pattern

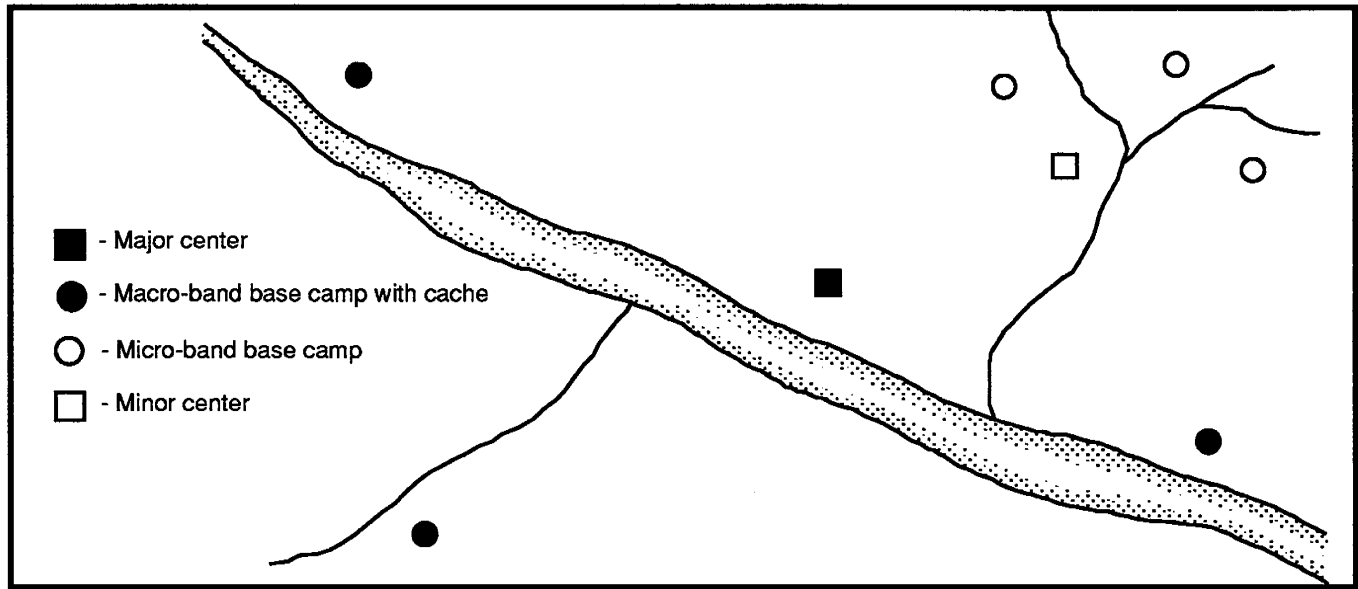


procurement sites are also expected in the project areas. Figure 4 shows the projected site location model for mid-drainage wetlands. Woodland I sites are expected throughout the five study areas with procurement sites found adjacent to interior swamps and ephemeral streams and procurement-staging sites found in areas where there are clusters of procurement sites.

Of special interest is the large number of recorded Delmarva Adena Complex sites known from central Delaware. To this time, only Adena mortuary/exchange centers have been located and an understanding of Adena settlement patterns remain elusive. Figure 5 shows a localized site location model for the Delmarva Adena Complex.

Prehistoric settlement during Woodland II times (ca. A.D. 1000 - A.D. 1600) seems to have been less dense, less sedentary, and less intensive than that of the Woodland I Period (Custer 1982; Custer and De Santis 1986:56-58; Stewart, Hummer, and Custer 1986). Procurement sites would be similar to those noted for the Woodland I Period. The project area falls primarily within the northern fringe of the Slaughter Creek Complex (Custer 1984). However, some larger Woodland II sites may be expected, such as the Hughes-Willis site (7K-D-21), which is located near the project area and shown on Figure 3.

FIGURE 5
Woodland I Mid-Drainage Mortuary/Exchange Center
Settlement Patterns



The primary goal of the Phase II survey was the identification of site limits and the determination of potential eligibility for inclusion on the National Register of Historic Places of all the archaeological sites identified by the Phase I survey within the proposed right-of-way. Significance was determined according to the archaeological integrity of the site, particularly the presence of intact sub-surface features and artifacts in undisturbed stratigraphic contexts, and the ability of the site to provide data pertinent to current archaeological research questions as provided for under Criterion D of the National Register of Historic Places. The current archaeological research questions used in the determination of significance are discussed in greater detail in Custer, Bachman, and Grettler (1987). Specifically, research on historical archaeological sites within the Proposed State Route 1 Corridor seeks to gather data relevant to current research questions identified in the Management Plan for Delaware's Historical Archaeological Resources by De Cunzo and Catts (1990). De Cunzo and Catts identify four primary research domains—or themes—within current historical archaeological practice that can be addressed through research on sites in Delaware. In turn, further research on these themes will broaden our understanding of more local questions on the history of Delaware and the surrounding Mid-Atlantic region. A summary of each of the four primary research domains identified by De Cunzo and Catts (1990) that were used to guide archaeological research on sites within the project area follows.

The first and most important research domain archaeologically is the reconstruction and interpretation of the domestic economy of individual sites. Such research seeks to identify different domestic social and economic strategies. These concerns reflect the centrality of the family as both a social and economic unit within the American historical experience. The goal is to identify discrete economic and social decisions within individual sites and then to use such data to reconstruct local, regional, and even international consumption and production patterns. These broad patterns provide a context for a number of important current research topics in history and archaeology, including questions related to foodways, architecture and land use, degree of economic self-sufficiency, consumer behavior, and the degree of market participation. Moreover, these patterns change over time, space, and socioeconomic status, and archaeological evidence is particularly well-suited to addressing such questions. Evidence of changing dietary and subsistence patterns and differences between varying social and economic statuses are important in our current understanding of Delaware history.

The second primary research domain concerns manufacturing and trade. Like evidence of domestic occupation, evidence of equipment, raw materials, finished products, and transportation used in all manufacturing processes is particularly well preserved in the archaeological record. Like domestic sites, manufacturing sites in Delaware were critically influenced by transportation conditions and improvements. Also like domestic sites, manufacturing and trade sites provide important evidence of significant social, economic, and technological changes, such as changing uses of space over time, and the defining of activity areas. Evidence of trade and merchant activity, particularly stores and local transportation-related manufacturing/service centers (such as blacksmith and wheelwright shops) are particularly important.

The third primary research domain is the reconstruction and interpretation of the historic landscape. The historic landscape includes both natural and man-made elements. Current research seeks to reconstruct the natural and cultural environment through the identification and analysis of land divisions, spatial utilization patterns, architectural forms, and local geographic setting. Each of these elements can be reconstructed on a number of levels: site-specific, local or inter-site, sub-regional, regional and national. Each of these elements also changes over time, adding a further dimension to current efforts to reconstruct the Delaware landscape.

The final primary research domain is the analysis and identification of social group identity behavior and interaction through historical and archaeological research. Such research seeks to study the social, religious, political, and economic interaction of different groups. The most appropriate study unit for these questions is the local community. Groups have been most often defined by occupation, socioeconomic status, and ethnicity.

In sum, the excavation of various sites along the proposed State Route 1 Corridor have served to greatly enlarge the data base of both prehistoric and historical sites. The collection of comparable data helps to answer the questions that illuminate patterns of change over time in order to better understand diachronic cultural processes. Data from further work in the five proposed areas of borrow pit and wetland replacement areas in Kent County is expected to yield data significant to current research questions in prehistoric and historical archaeology and the history of Delaware and the surrounding Mid-Atlantic region.

FIELD, LAB, AND ARCHIVAL METHODS

Each of the five proposed borrow pit and wetland replacement areas was given a numerical designation. Large project areas were given additional alphabetical designations to distinguish between eastern and western or northern and southern portions. Grids were established and transects were given the designation of a compass co-ordinate, a letter for the transect and the shovel test pits (STPs) were numbered. All archaeological tests were keyed to these numbers. Phase I field methods consisted of the pedestrian survey and selective shovel testing of areas of low, medium, and high site potential. Plowed fields were subjected to controlled surface collections. Woodlots, fallow fields, and areas of poor surface visibility were shovel tested at 20' and 40' intervals. Shovel tests were oriented toward landscape features and were sited along measured grids. All shovel test pits and controlled surface collections were then mapped on detailed 1" to 400' aerial photographs provided by the Delaware Department of Transportation.

The Phase II archaeological field methods included a mixture of shovel test pits and the excavation of 3' X 3' test units within and around areas defined as archaeological sites by the Phase I Survey (Bachman, Grettler, and Custer 1988). Testing was concentrated, but not confined to the limits

of the proposed right-of-way as one of the primary goals of the Phase II survey was to determine site limits.

The standard excavation procedure to determine site limits and gather initial archaeological data was to place shovel test pits at intervals of 20 feet in a grid pattern over the site. The interval was reduced to 10 feet in areas of high artifact density or areas with a high potential for features. The goal of shovel testing was to gather data on artifact distributions, site stratigraphy, and the stratigraphic context of artifacts and features. Special emphasis was placed on the detection of cultural features and the identification of intact, artifact-bearing stratigraphic contexts.

Shovel test pits were laid out along measured transects and grids. All soils excavated were passed through 1/4-inch mesh and all cultural materials recovered were bagged according to the individual test unit and the arbitrary or natural excavation level. Stratigraphic soil data and a record of all cultural materials found were kept for each shovel test on standardized log sheets.

Measured 3' X 3' test units were excavated in areas of high artifact density or atop historical features identified by archaeological testing. All of the test units were excavated to sterile soil unless large historical features were encountered. Small historical features such as post molds were completely excavated while larger features such as wells and cellar holes were sampled. All excavated soil was screened through 1/4-inch mesh and detailed stratigraphic and historical feature records were kept on standardized forms. All subsurface excavations were excavated according to natural soil levels or systematic arbitrary levels. All feature soils were excavated and screened separately. Mean ceramic dates were calculated using mean ceramic date values based on South (1977) and Brown (1982).

Test units were located and described by the coordinates of their southwest corner as determined by the same transit grid as the Phase II shovel test pits. All subsurface tests were mapped on 1/600th scale, one-foot contour field maps (scale: 1 inch equals 50 feet) provided by the Division of Highways. These highly accurate maps were keyed to the centerline surveyors stations and allowed for the accurate placement of finds made during the Phase I and II Surveys.

Prior to a detailed artifact analysis, the standard artifact processing procedures of the Delaware Bureau of Museums were applied to all artifacts recovered from the Phase I and II excavations. All artifacts were cleaned in the lab with plain water, or, in the case of deteriorating bone, shell, or metal,

were damp- or dry-brushed. Bone and shell were then placed in labeled bags. All other artifacts were labeled with the site number and a three digit provenience number. Artifacts were sorted in categories for cataloging based on their material composition. The total artifact count and basic artifact inventory for each site is provided in Appendix I.

Archival research methods included the detailed reconstructions of individual site histories based on deed research and other archival sources. Historical atlases of Kent County showing individual structures, specifically Byles' 1859 and Beers' 1868 atlases, were also used. The goal of deed research was to identify the occupants of a site through time and to reconstruct the local historical landscape. Once deed research was completed, occupants of individual sites were traced through a variety of historical records. Tax assessments, particularly detailed lists made between 1797 and 1828, provided important historical data, including evidence of the relative socioeconomic status of site occupants. Various national censuses, particularly population censuses taken after 1790 and agricultural censuses taken after 1850, provided both site-specific and local data. Local government records, specifically Orphan's Court and probate records, provided critical site-specific information for many sites. Genealogical data from both published and unpublished sources at the Delaware State Archives in Dover were also used.

All site locations were then transferred to cultural resource maps in the possession of the Delaware State Historic Preservation Office in Dover, Delaware. All new sites were assigned Cultural Resource Site (CRS) numbers and CRS forms were completed for each site. Appendix II provides an example on site numbers.

BACKGROUND RESEARCH

In preparation for the archaeological survey of the project area, prior archaeological planning studies (Custer et al. 1984; Custer and Bachman 1986; Custer, Bachman, and Grettler 1986, 1987; Bachman, Grettler, and Custer 1988; Grettler et al. 1991a, 1991b) and the site files of the Bureau of Archaeology and Historic Preservation were consulted to identify known archaeological resources within or adjacent to the project area. Historical maps and atlases noted in the planning studies including Byles' 1859 and Beers' 1868 historical atlases, the 1906 USGS topographic survey map, and Bausman's 1939 Kent County map were also consulted for the locations of former standing structures which have

now become archaeological sites. Current landowners and tenants were queried regarding any observations they may have had about cultural resources on their property. From these sources, several known prehistoric and historical sites were located. A summary of the major historical and prehistoric sites in the vicinity of each of the five proposed borrow pit and wetland replacement areas is presented next.


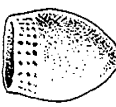

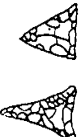
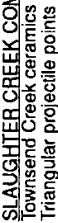
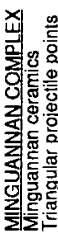



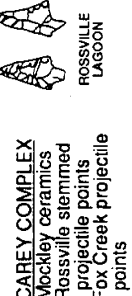


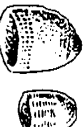

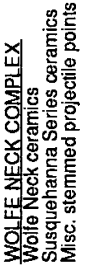


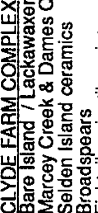






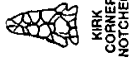
The nearest significant site to Area 1 along Woodland Beach road is the John Darrach Store site (7K-A-101). The John Darrach Store site is the remains of a store and tenant-occupied dwelling in use from ca. 1770-1830. The site is located north of Area 1 along the south side of Kent Route 6 approximately one half mile east of Smyrna. John Darrach was a wealthy local merchant with extensive local and regional commercial connections. The John Darrach Store site was subjected to data recovery operations by archaeologists from the University of Delaware Center for Archaeological Research in 1989 (De Cunzo et al. 1992).

The nearest significant sites to Area 2 along Taylor's Gut are eight nineteenth and early twentieth century agricultural complexes: K-3981 to K-3984, K-3964, K-4000, K-4001, and K-4007. These sites are all extant nineteenth and early twentieth century farms located on adjacent properties. No prehistoric sites are known in the area.

The most significant sites nearest to Area 3 are located along the Leipsic River. This complex of prehistoric sites was nominated for the National Register in 1988 (Bachman, Mellin, and Custer 1989). One of the sites in the Middle Leipsic River Archaeological Complex, 7K-C-194A, was subjected to data recovery operations in 1990. This site is located along the north side of the Leipsic River across from Area 3. Data recovery excavations at 7K-C-194A identified the remains of a large macro-band base camp used during the Woodland I (3000 B.C. to A.D. 1000) and Woodland II (A.D. 1000 - A.D. 1650) periods (Table 1). Intact prehistoric cultural features containing Clyde Farm Complex artifacts from ca. 2000 B.C. were identified and the potential for similarly intact cultural features is high for Area 3.

The most significant sites located nearest to Area 4 east of Dover are 7K-C-365A, the Dover Downs Hill A prehistoric component and 7K-C-365B, the Dover Downs Hill B prehistoric and Loockerman's Range historical components (Bachman, Grettler, and Custer 1988; Riley et al. 1993; Riley, Watson and Custer 1993). Both are located just east of present Kent 88 on the northern end of the

TABLE 1
Prehistoric Cultural Complexes of Delaware

DATE	PERIOD	LOW COASTAL PLAIN	HIGH COASTAL PLAIN	PIEDMONT / FALL LINE
A.D. 1600	WOODLAND II	 LARGE TRIANGULAR POINT	 CERAMICS	 GROUND STONE AXE
A.D. 1000		 TRIANGULAR PROJECTILE POINTS	 SLAUGHTER CREEK COMPLEX Townsend Creek ceramics Triangular projectile points	 MINGUANNAN COMPLEX Minguanan ceramics Triangular projectile points
A.D. 500		 LATE CAREY COMPLEX Mockley / Claggett ceramics Large triangular projectile points	 WEBB COMPLEX Hell Island ceramics Misc. stemmed points Jack's Reef pentagonal projectile points	 DELAWARE PARK COMPLEX Hell Island ceramics Misc. stemmed projectile points
A.D. 500		 CAREY COMPLEX Mockley ceramics Rossville stemmed projectile points Fox Creek projectile points	 CAREY COMPLEX Mockley ceramics Rossville stemmed projectile points	 CAREY COMPLEX Mockley ceramics Rossville stemmed projectile points
A.D. 0	WOODLAND I	 CERAMICS	 WOLFE NECK COMPLEX Wolfe Neck ceramics Misc. stemmed projectile points	 WOLFE NECK COMPLEX Wolfe Neck ceramics Susquehanna Series ceramics Misc. stemmed projectile points
500 B.C.		 CERAMICS	 DELMARVA ADENA COMPLEX Adena side and corner notched projectile points Misc. stemmed projectile points Coulbourn ceramics	 CLYDE FARM COMPLEX Bare Island / Lackawaxen projectile points Marcey Creek & Dames Quarter ceramics Broadspears Fishtail projectile points Steatite bowls Experimental ceramics
3000 B.C.	ARCHAIC	 BROADSPEARS	 CERAMICS	 BROADSPEARS
6500 B.C.		 BARE ISLAND / LACKAWAXEN	 CARVED STEATITE (SOAPSTONE) BOWL	
12000 B.C.	PALEO-INDIAN	 CLOVIS	 KIRK CORNER NOTCHED	

Dover Downs Racetrack property. The Hill A component, 7K-C-365A, is located on a 10' high, 300' long sand ridge on the south side of Muddy Branch. The Phase II excavation of the site showed that a variety of cryptocrystalline, quartz and argillite materials were used to fashion bifaces from the Paleo-Indian through Woodland I Periods (Riley et al. 1993). Woodland I ceramics (Wolfe Neck, about 500 B.C. to 0 A.D.) and Woodland II ceramics (Minguannan type, post-dating A.D. 1000) were also found (Table 1). Numerous other chipped stone tools, flakes, fire-cracked rock, cores, and a double-sided stone mortar were found, as well as several deep pit features with flakes, bifaces, and datable wood charcoal. One of these features, Feature 12, produced a stemmed point and a calibrated radiocarbon date of 6381 (6217, 6202, 6183) 6127 B.C. (Stuiver and Becker 1986; Stuiver and Pearson 1986). A second feature, Feature 13, yielded a jasper bifurcated base point and two calibrated dates of 6554 (6449) 6421 and 5193 (4990, 4988, 4945) 4901 B.C. (Stuiver and Becker 1986; Stuiver and Pearson 1986). Further work at this site may produce additional data on these occupations.

The Hill B component, 7K-C-365B, lies about 200 feet southwest of 7K-C-365A and contains an early eighteenth century domestic archaeological component (Loockerman's Range) and a large prehistoric component dating to the Woodland I and Woodland II periods. The Loockerman's Range component takes its name from the estate name of the eighteenth century owner, Nicholas Loockerman, and included domestic refuse and ceramics dating to the second quarter of the eighteenth century. The site is thought to be a tenant site, for Loockerman is known to have divided the 600 acre plantation into six equal parcels and rented them out to individual farmers. The prehistoric component, which was minimally disturbed by the eighteenth century occupation, included about 8000 artifacts, over 99% of which were unmodified waste flakes and cobble cores of quartzite. The lithic material surrounded a small, intact hearth but no other prehistoric soil pit features were associated. The site is clearly a quartzite lithic reduction site, but indications are that little else took place at the site. The source of the cobble quartzite is unknown, but it is probably nearby.

Several other prehistoric sites near Area 4 were located during the 1987 Phase I survey (Bachman, Grettler, and Custer 1988) and Phase II excavations at the sites have been completed and are summarized in Grettler et al. (1991a) and Riley et al. (1993). The early indications are that 7K-C-366 (Davis Beanfield site), 7K-C-364 (Huston Woodlot), 7K-C-367 (Jefferic Fallow Field site), and 7K-C-

368 (Ruyter/Jefferic Woodlot site) are all procurement or procurement/staging sites. They contained limited amounts of ceramic artifacts and no features. The artifacts recovered included low to moderate density debitage (30-100 artifacts per 1m x 1m square), cores, fire-cracked rock and an occasional biface and suggested periodic or occasional reuse rather than continual habitation.

Area 5 was initially pedestrian surveyed in 1987 as part of the Phase I survey of the proposed State Route 1 corridor. Four nearby archaeological sites, three prehistoric, and one historical, were located (Bachman, Grettler, and Custer 1988). The single historical site, 7K-D-115, was determined to be a simple trash deposit of late nineteenth and early twentieth century commercial ceramic sherds. These ceramic sherds were deposited along the north side of Lafferty Lane and the site was not recommended for Phase II testing.

The three prehistoric sites; 7K-C-370, 7K-D-112 and 7K-D-113, were located within the proposed right-of-way outside of Area 5. 7K-C-370 consisted of a small scatter of prehistoric artifacts: a nondiagnostic chert biface fragment, a jasper utilized flake, and two pieces of fire-cracked rock. Site 7K-D-112 consisted of a single argillite cache blade found on a slight rise adjacent to a Fallsington bay/basin feature. Site 7K-D-113 consisted of a single utilized jasper flake found in a shovel test pit in a woodline along the northeast corner of the field. It was determined that 7K-C-370 did not warrant Phase II testing. Sites 7K-D-112 and 7K-D-113, however, were recommended for Phase II testing (Bachman, Grettler, and Custer 1988).

Sites 7K-D-112 and 7K-D-113 were tested by Phase II operations in 1988. Phase II testing consisted of shovel tests and measured test units. These tests are summarized in Riley et al. (1993). Phase II testing yielded few artifacts and located no intact artifact deposits or cultural features. Neither 7K-D-112 nor 7K-D-113 was determined to be National Register eligible and thus no further work was recommended.

In conclusion, the information gathered from the various sites along the proposed State Route 1 Corridor has served to greatly enlarge the data base of both prehistoric and historical sites in central Delaware. The Phase I and II survey of the five proposed borrow pit and wetland replacement areas offers to further enlarge this data base. This data is especially valuable because 1) little was previously known about the history and prehistory of these parts of Kent County and (2), the area is being rapidly developed for highways and residential and commercial building projects.

PHASE I AND II SURVEY RESULTS

AREA 1, WOODLAND BEACH ROAD

Area 1 is located south of Kent 6 (Woodland Beach Road) east of Smyrna (Figure 1). Area 1 extends south from relocated Kent 6 to Mill Creek east of the proposed right-of-way of State Route 1. This area is generally flat with gentle 4' to 6' elevation changes and a severely eroded ephemeral drainage north of Mill Creek. A large part of the northernmost area of Area 1 had been severely disturbed by the construction of the Kent 6 realignment (Figure 6).

Phase I testing of Area 1 located no additional historical or prehistoric sites. A total of 72 shovel test pits were excavated at 20 foot and 40 foot intervals. The location of these tests are shown in Figure 6. No structures are shown on any known nineteenth century maps of the area, including Byles' (1859) and Beers' (1868) historical atlases. Intensive archival research as part of data recovery operations at the nearby John Darrach Store site immediately north of Area 1 also located no structures in the project area (De Cunzo et al. 1992).

Phase I shovel testing of Area 1 located a consistent plow zone scatter of nineteenth and twentieth century artifacts. Artifacts recovered consisted largely of coal, amber and clear bottle glass, and small whiteware and redware ceramic sherds. Artifact density ranged from one to five artifacts per shovel test. All of these artifacts came from disturbed, plow zone contexts. The distribution of these historical artifacts was random and no evidence of a historical site was identified. Uniform artifact densities over the entire parcel indicate simple plow zone scatter.

A typical soil profile of Area 1 in a moderately eroded area (STP 1-17) is shown in Figure 7. The stratigraphy of Area 1 consisted of two simple strata, plow zone and subsoil. The plow zone was a consistent dark brown silty loam extending to approximately 0.6' below ground surface in eroded areas to 1.0' below surface in less eroded areas. Underlying the plow zone was a yellow-brown sandy clay. Eroded areas were indicated by both a truncated plow zone (generally less than 0.75' thick) and a more gravelly subsoil. Eroded areas were most noticeable near Mill Creek.

Three shovel tests, 1-17, 1-14, and 1-41, located prehistoric artifacts in this project area. These three tests are located on the same eroded terrace as sites 7K-A-97, 7K-A-98 and 7K-A-99 (Figure 6).

FIGURE 6
Location of all Phase I Tests in Area I

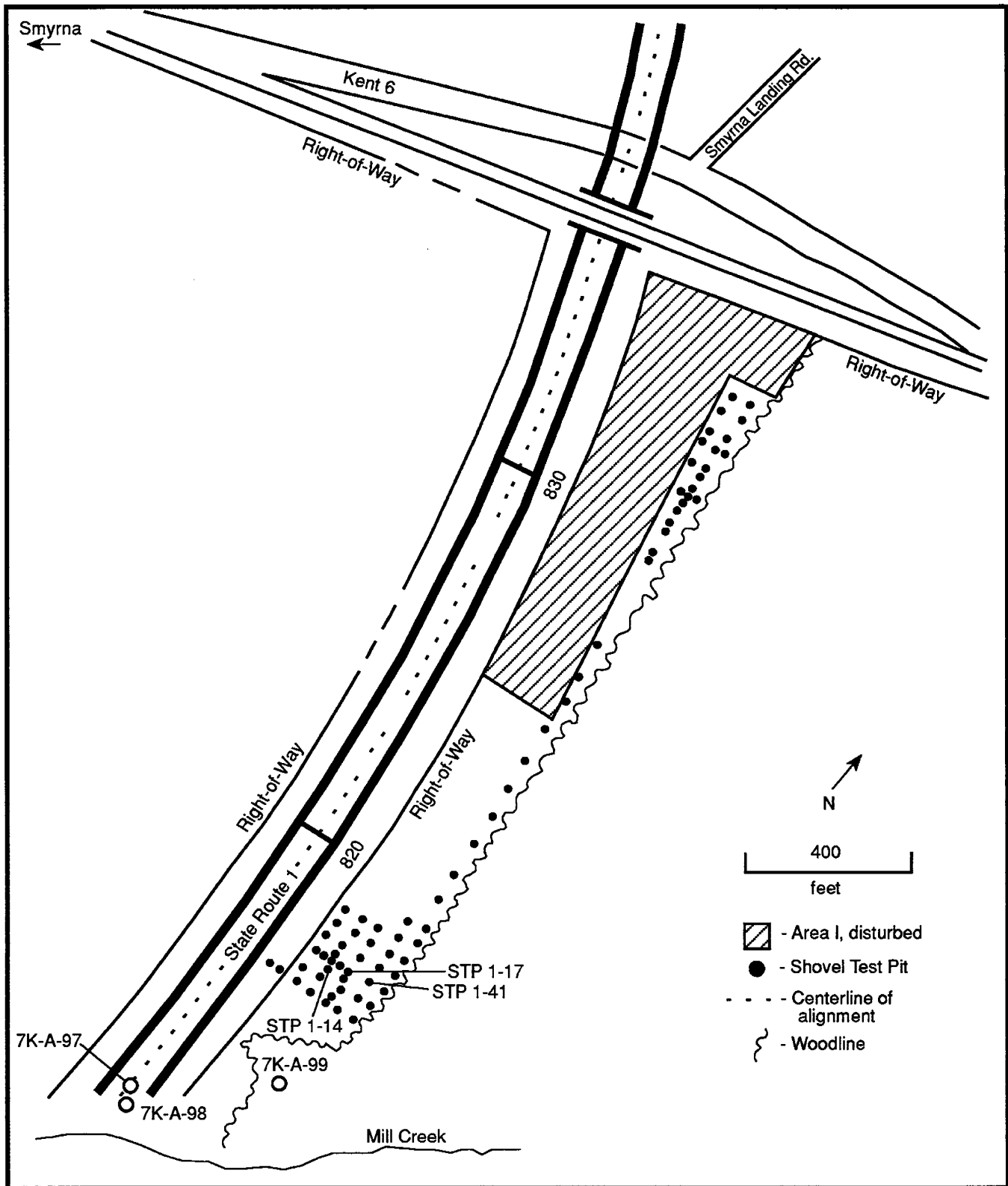
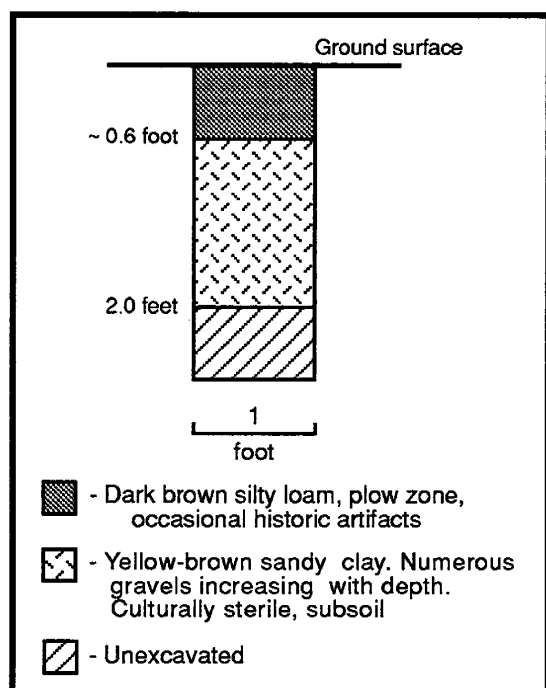


FIGURE 7
Typical Soil Profile in Area 1
(STP 1-17)



One quartz or quartzite flake was found in the severely eroded plow zone of each test. Additional shovel tests were placed at 20' intervals around each test and no additional prehistoric artifacts were found. No artifacts were recovered from intact subsoil contexts.

In summary, Phase I testing located no additional archaeological sites in Area 1. No further work is recommended.

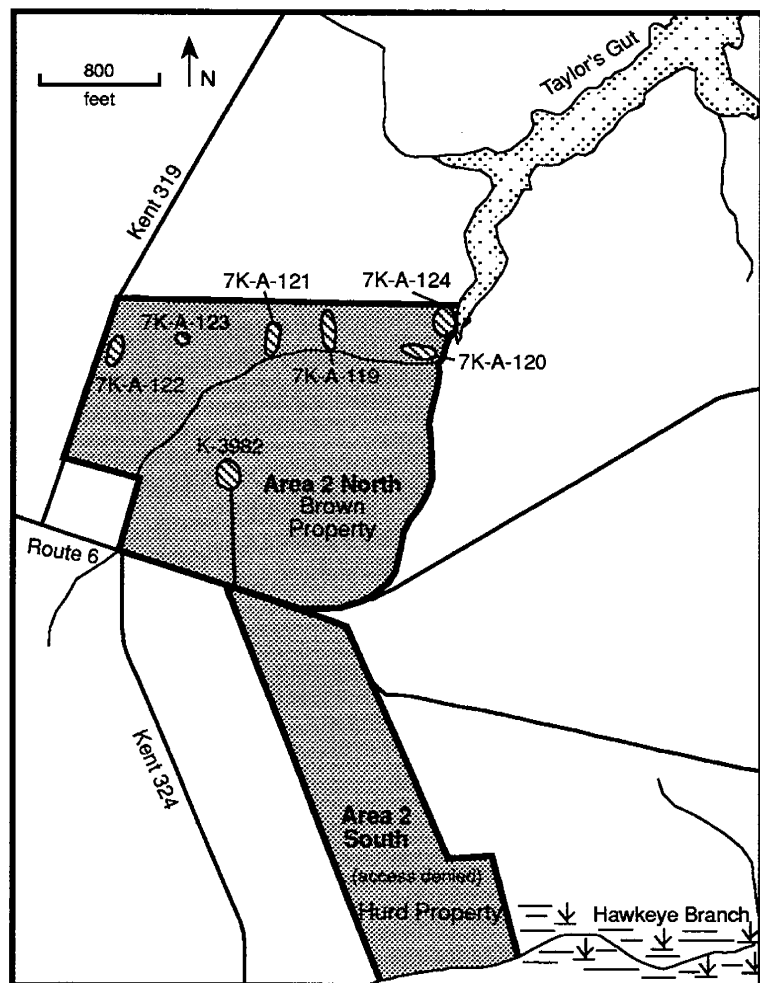
AREA 2, BROWN AND HURD PROPERTIES

Area 2 is located east of Smyrna, on the north and south sides of Kent 6 (Figure 1). The area is extremely flat and elevations range between 10 and 13 feet above sea level. The southern portion (Area 2S - south of Kent 6) is owned by Mr. Carl Hurd who denied access. The

northern portion (Area 2N - north of Kent 6) is owned by Mr. Ellis A. Brown of Kenton, Delaware. Mr. Brown rents the 1920s concrete block farmhouse (K-3982) on the property and tills the land with his son, Mr. Gerald Brown. Mr. Ellis Brown initially permitted testing, but later withdrew permission after five days of field work. During this week of testing, however, five prehistoric sites (7K-A-124, 7K-A-123, 7K-A-121, 7K-A-119, and 7K-A-120) and two historical sites (7K-A-122 and K-3982) were identified and partially tested. Figure 8 shows the location of all archaeological sites and areas surveyed in Area 2. A summary of the artifacts recovered from the sites in Area 2 is given in Appendix I.

Phase I testing was completed at only one of the seven sites identified in Area 2. This site was 7K-A-122, the remains of a mid- to late nineteenth century house that appears on Byles' (1859) and Beers' (1868) historical atlases as the "D. Palmatory" house (Figures 9 and 10). Site 7K-A-122 is located in a tilled winter wheat field. Surface visibility was excellent (90%) and the entire field was subjected to a controlled surface collection. The site was identified as a 160' by 200' concentrated scatter of nineteenth century ceramic sherds, coal, and brick fragments east of Kent 319 (Figure 8). Historical

FIGURE 8
Location of Archaeological Sites in Area 2



ceramic artifacts recovered included diagnostic nineteenth century ironstones, redwares, yellowwares, and sponge, transfer-printed, and annular whitewares. These artifacts were found among numerous brick, nail, and window glass fragments that clearly marked the location of at least one structure.

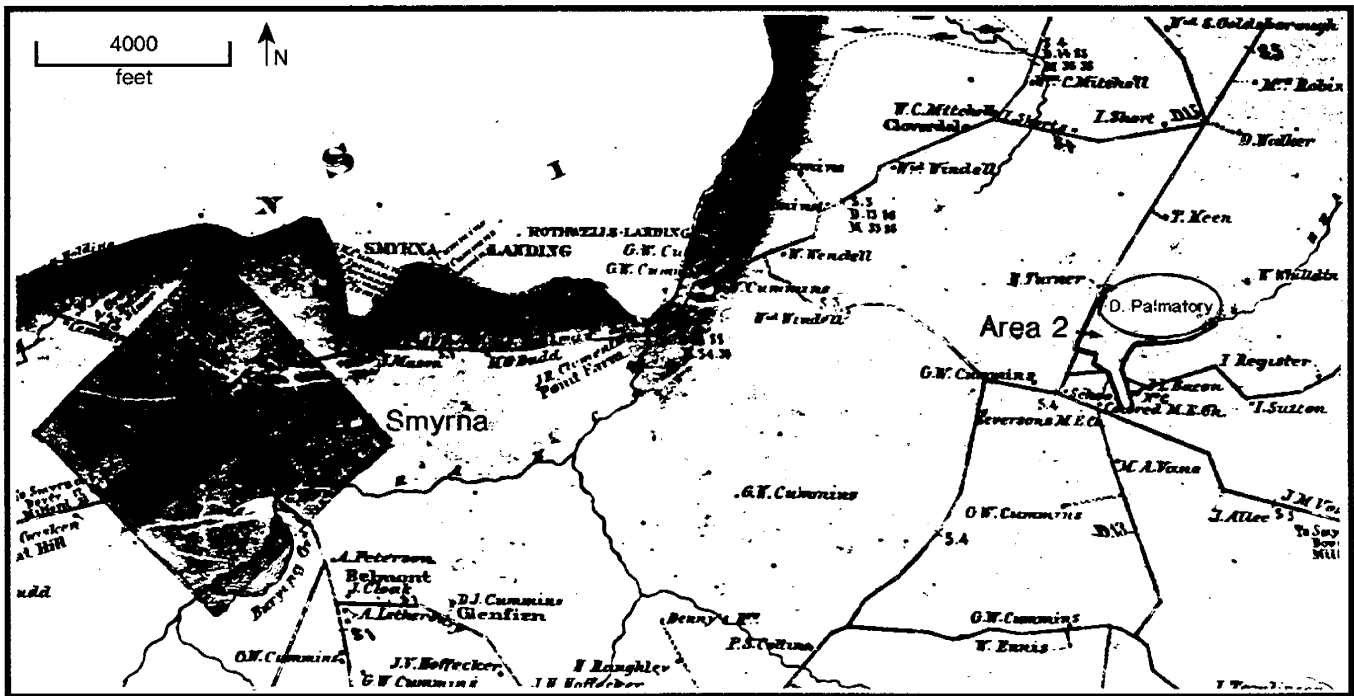
The area of 7K-A-122 identified by pedestrian survey was then tested by a total of 53 shovel test pits. The site is located on a small 2' rise of Matapeake silt loam surrounded by more poorly-drained Othello and Mattapex silt loams. The area of the site indicated by Phase I testing corresponds closely to the limits of the Matapeake rise. The shovel tests were excavated on a 20' grid oriented to Kent 319 and the slight rise on

which the site is located (Figure 11).

Historical artifacts were recovered in every shovel test at site 7K-A-122. Artifact density ranged from 2 to 97 artifacts per shovel test. One intact historical feature, probably the remains of a cellar hole, was located in Shovel Test Pit B-13 (Figure 11). The majority of the artifacts recovered came from disturbed plow zone contexts, but artifacts were recovered from intact subsoil deposits in three other shovel tests near Shovel Test Pit B-13 (Figure 11).

The greatest density of historical artifacts was recovered from the vicinity of the historical feature located in Shovel Test Pit B-13. The feature consisted of a thick layer of dark, highly organic silty loam

FIGURE 9
Detail of Byles' 1859 Atlas Showing Area 2 and
the D. Palmatory Property

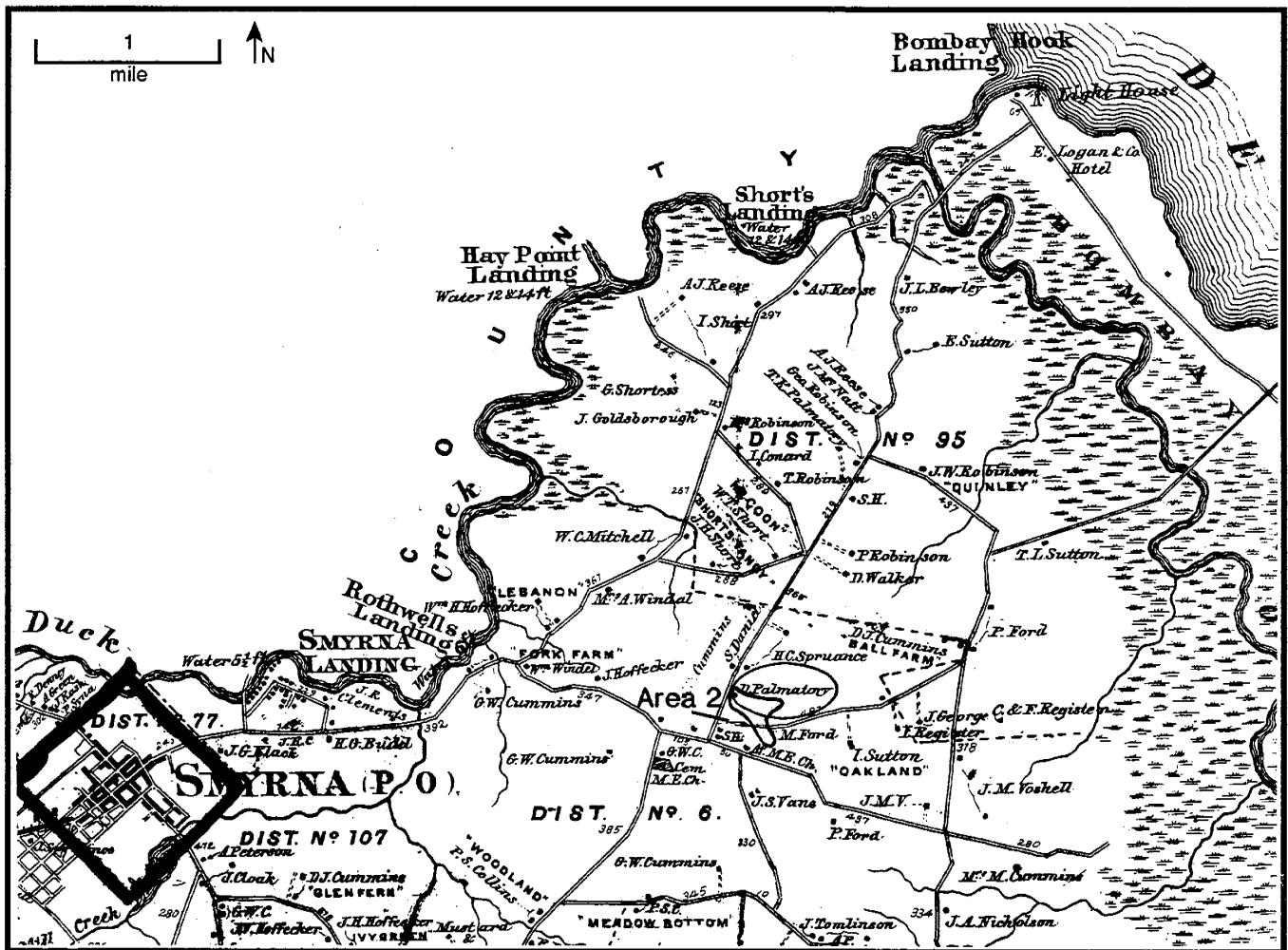


containing numerous historical artifacts including whiteware, redware, ironstone, and panel bottle fragments. This layer was found below the plow zone from 0.9' to 1.4' below ground surface. Numerous faunal remains including oyster shell, beef, and pig remains were also recovered from below the plow zone. A profile of Shovel Test Pit B-13 is shown in Figure 12.

The remaining historical site, K-3982, consists of an extant 1920s farmhouse and associated outbuildings. The house dates to the 1920s and is currently occupied by tenants, Mr. and Mrs. H.W. Osbaker. The house has a concrete block foundation, and according to Mr. Brown who purchased the farm in the 1940s, was built in the 1920s by the previous owner. No earlier structures appear on either Byles' (1859) or Beers' (1868) historical atlases, or the 1906 topographic map of the Dover area. The structure, however, does appear on Bausman's 1939 map of Kent County. No subsurface testing was conducted at K-3982, but it is likely that the structure has associated archaeological remains.

Because Phase I testing was not completed, less is known about the five prehistoric sites. All of these prehistoric sites are located along the north side of an unnamed tributary of Taylor's Gut (Figure

FIGURE 10
Detail of Beers' 1868 Atlas Showing Area 2 and
the D. Palmatory Property



8). These sites are located in a fallow field and were identified by single line of shovel tests excavated at 20 foot intervals. These transects were excavated along small one to two foot rises of Matapeake and Mattapex silty loam. Broad, ephemeral drainages and associated Othello silts separated each transect. Pedestrian survey was not possible because of negligible ground visibility.

The largest of the five prehistoric sites north of Taylor's Gut is 7K-A-124. Site 7K-A-124 is located along the edge of a historically unplowed woodline along the north bank of Taylor's Gut at the extreme inland limit of tidal influence on that waterway (Figure 8). The site extends into an adjacent fallow field, but the core of the site appears to lie in an unplowed, wooded area. This unplowed area is situated on a 12' sandy bluff overlooking Taylor's Gut.

FIGURE 11

Location of all Phase I Tests
at 7K-A-122 (Area 2)

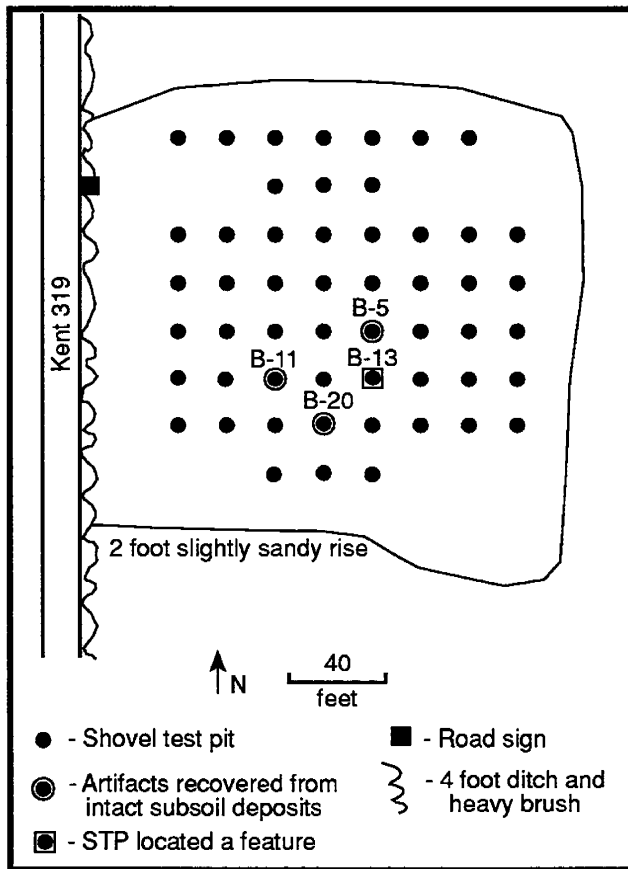
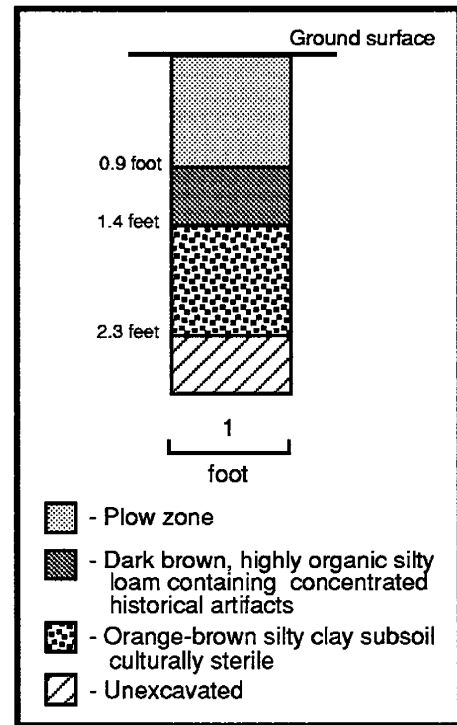


FIGURE 12

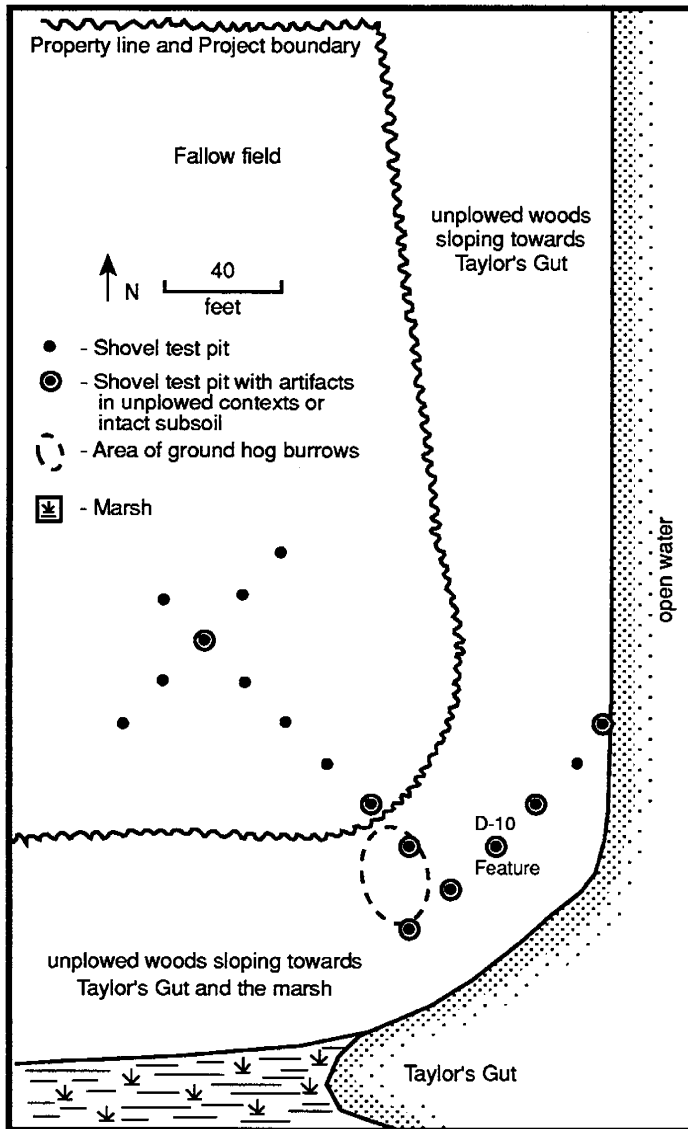
Profile of STP B-13,
7K-A-122



A total of 17 shovel tests were excavated at 7K-A-124. Part of the site was determined to be unplowed. The location of all tests and the unplowed portion of the site is shown in Figure 13. Prehistoric artifacts were recovered from all but two tests. Artifacts were recovered from intact subsoil and unplowed contexts in eight tests.

One prehistoric feature containing a jasper Woodland II triangle point was located in shovel test D-10. This feature, part of a larger hearth, consisted of a concentration of 25 pieces of fire-cracked rock. The projectile point and fire-cracked rock were recovered from a medium yellow-brown clayey loam extending from 0.5' to 1.5' below ground surface (Figure 14). No highly organic or identifiable feature fill was located. The soils encountered in Shovel Test Pit D-10 are typical of site 7K-A-124. A dozen additional pieces of fire-cracked rock were observed in the spoils of a nearby ground hog burrow. Such burrows may have disturbed a small portion of the site.

FIGURE 13
Location of all Phase I Tests at
7K-A-124 (Area 2)



A total of 44 pieces of debitage and 78 pieces of fire-cracked rock were found during partial Phase I testing at 7K-A-124. Quartz was the most common raw material, but a variety of other materials including jasper, chert, chalcedony, quartzite, and rhyolite were recovered. Over half of all flakes (60%) were quartz. The presence of prehistoric features in unplowed contexts and the range of lithic raw materials recovered in only these limited tests indicates that 7K-A-124 is a significant prehistoric site.

Three of the four remaining prehistoric sites in Area 2, 7K-A-121, 7K-A-119, and 7K-A-120, consist of small lithic scatters along the edges of shallow, ephemeral drainages (Figures 8 and 15). These sites are located in a fallow field on slight 1' to 2' Mattapex silty loam rises. Each site has been plowed and contained the same simple stratigraphy of a 0.8'

thick silty loam plow zone atop a yellow-brown, slightly silty clay subsoil (Figure 16). Shovel tests were systematically excavated at each site and prehistoric artifacts were found in the majority of the tests. Artifacts were also recovered from intact subsoil contexts, but testing was limited because of curtailed access.

A total of six shovel test pits were excavated at 7K-A-121 (Figure 15). These tests were excavated along a single transect perpendicular to the existing woodline. A quartz flake and an argillite flake were

FIGURE 14

Typical Soil Profile of 7K-A-124 (STP D-10)

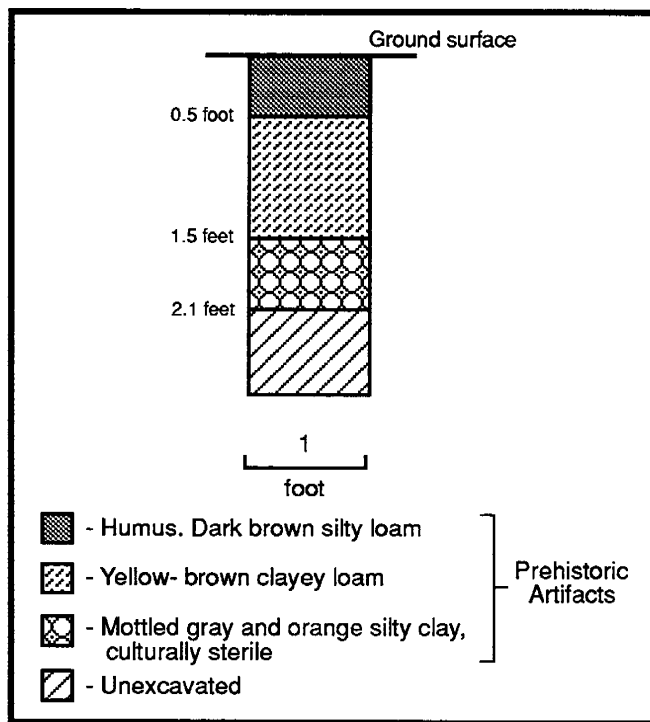


FIGURE 16

Typical Soil Profile of 7K-A-121, 7K-A-119 and 7K-A-120 (STP F-3)

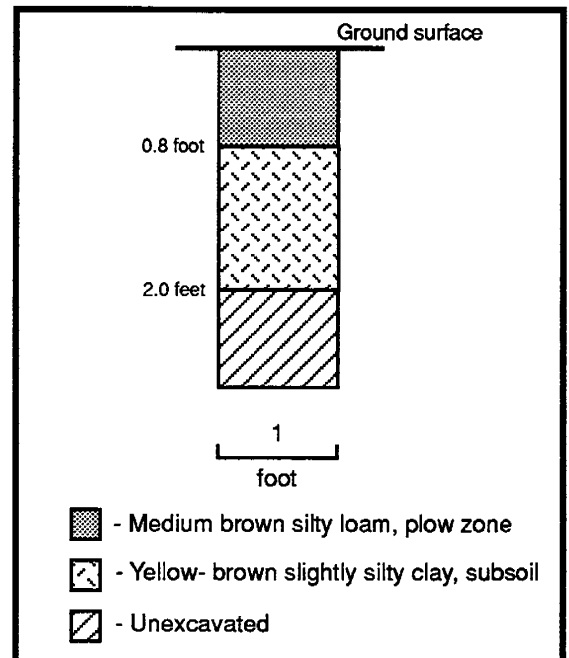
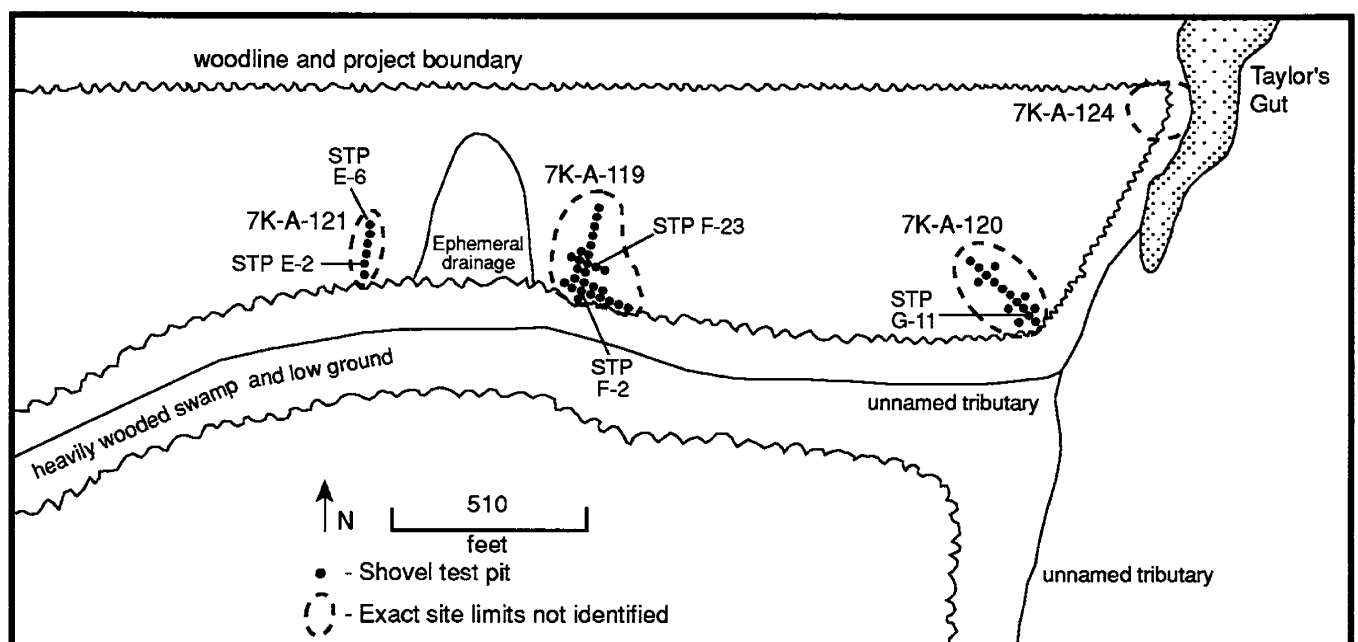


FIGURE 15

Location of all Phase I Tests at 7K-A-121, 7K-A-119, and 7K-A-120 (Area 2)



recovered from the plow zone of two tests, E-6 and E-2. No subsoil artifacts were recovered, but the potential for such deposits and intact features is high.

A total of 27 shovel tests were excavated on a 20' grid at 7K-A-119 (Figure 15). Prehistoric artifacts, primarily jasper, quartz, and chert flakes, were recovered from 18 tests. One diagnostic artifact, a chert bifurcate dating to the Archaic Period (6500 B.C. to 5500 B.C.), was found in the plow zone of Shovel Test Pit F-2. A total of five chert, jasper, and quartz flakes were recovered from intact subsoil contexts in three shovel tests. A possible prehistoric feature consisting of carbon flecks in the subsoil was identified in Shovel Test Pit F-23. No feature limits or other artifacts were recovered.

A total of 16 shovel tests were excavated at 7K-A-120 (Figure 15). Site 7K-A-120 is located on a slight 2' rise surrounded by low, poorly-drained Othello clays. Shovel tests were excavated along a single transect at 20' intervals and additional tests were excavated at 40' intervals along either side. Prehistoric artifacts, primarily quartz, jasper, and chert flakes, were found in eight tests. One diagnostic artifact, a small fragment of a grit tempered prehistoric ceramic, possibly Minguannan, was located in the subsoil of Shovel Test Pit G-11. A total of six fire-cracked rocks were found, including two found near the ceramic sherd in Shovel Test Pit G-11. The presence of both ceramics and fire-cracked rock indicates some level of domestic occupation. The potential for further intact artifact deposits and prehistoric features is high.

The remaining prehistoric site; 7K-A-123, located in Area 2 consisted of a single badly plow-scarred hammerstone recovered from the surface during pedestrian survey (Figure 8). Intensive pedestrian survey in a 200' by 200' area around this hammerstone with excellent surface visibility failed to locate any other evidence of prehistoric activity. Site 7K-A-123 thus represents an isolated find.

Conclusions and Recommendations

Phase I survey identified seven sites in Area 2. Testing was curtailed because of access restrictions and changes in proposed wetland construction designs, but six sites were partially tested by the Phase I survey. No Phase I testing was undertaken south of Kent 6 because access was denied by the landowner. Two historical sites were located: 7K-A-122, the remains of a mid- to late nineteenth century structure that appears on Byles' (1859) and Beers' (1868) historical atlases, and K-3982, an

extant early twentieth century farm. Phase I testing was completed at 7K-A-122. Diagnostic nineteenth century artifacts and cultural features were found in intact contexts and the potential for further significant archaeological remains is high. Although this site will not be impacted by proposed borrow pit and wetland replacement plans, a Phase II survey is warranted if 7K-A-122 is impacted by any future construction or development. Phase I testing was not completed at K-3982 and the potential National Register eligibility of this site is not known.

Five prehistoric sites were partially tested by Phase I testing. Four of these sites, 7K-A-119, 7K-A-120, 7K-A-121, and 7K-A-124, are oriented to Taylor's Gut and its tributaries. The fifth prehistoric site, 7K-A-123, is an isolated find. Prehistoric artifacts were recovered from intact subsoil deposits in three of the sites along Taylor's Gut: 7K-A-124, 7K-A-119, and 7K-A-120. Intact prehistoric features were identified at two of these sites, 7K-A-124 and 7K-A-119. The potential for intact features at 7K-A-121 and 7K-A-120 is likewise high. Diagnostic artifacts dating from the Archaic (6500 B.C. to 5500 B.C.) and Woodland II periods (A.D. 1000 - A.D. 1650) were recovered from 7K-A-119 and 7K-A-120 respectively.

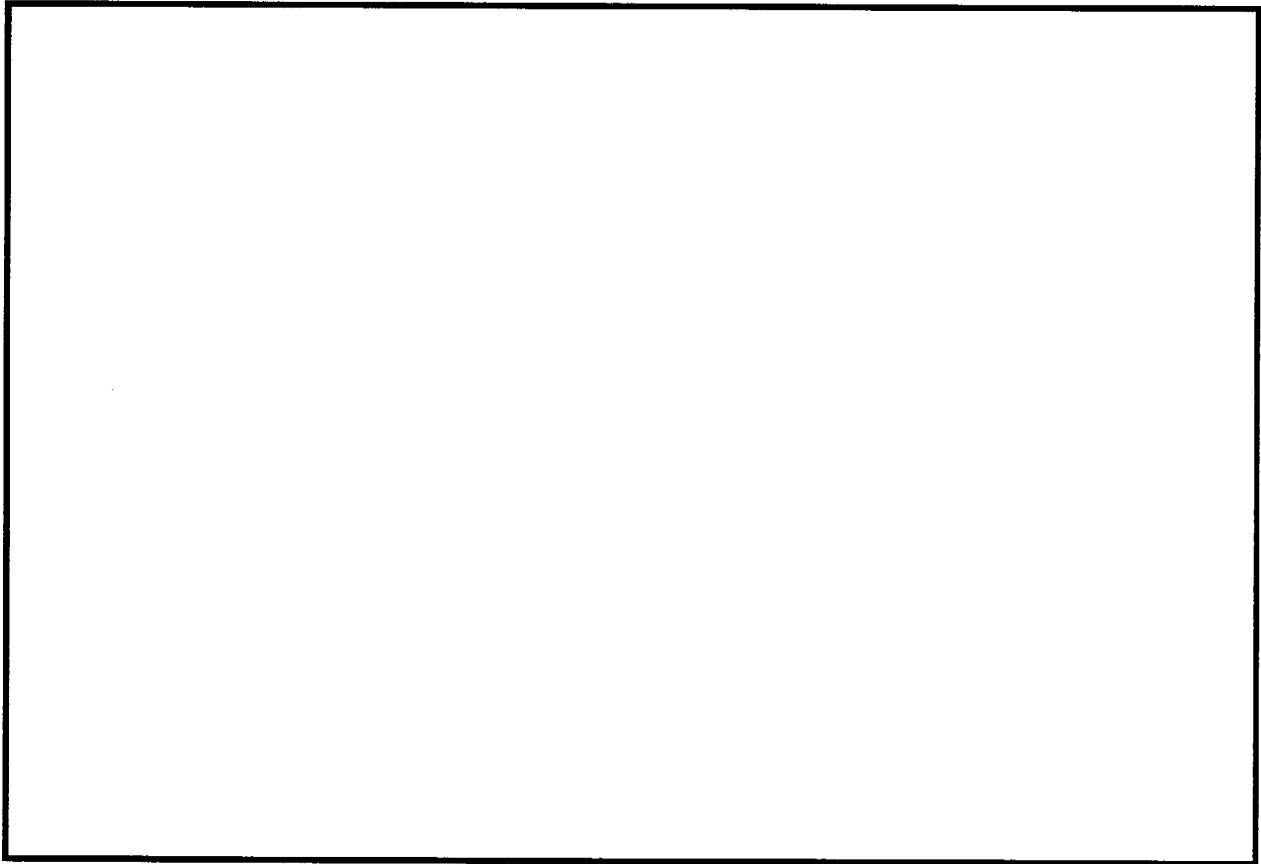
Partial Phase I testing suggested that four of the prehistoric sites were potentially National Register eligible and thus warranted Phase II testing: 7K-A-119, 7K-A-120, 7K-A-121, and 7K-A-124. Phase II testing, however, was not undertaken because of highway design changes and accessibility. If Area 2 is chosen as a future site for borrow pit or wetland replacement further Phase I testing and probably Phase II testing of these sites is recommended.

AREA 3, POLLACK PROPERTY

Area 3 is located south of Smyrna along the east side of present Route 13 (Figure 1). The Pollack property is a 50 acre agricultural field bounded on the north by a woodlot along the Leipsic River, on the east and south by Alston Branch, and on the west by the proposed right-of-way of State Route 1. Alston Branch is a major tributary of the Leipsic River. One large multicomponent prehistoric and historical site, 7K-C-203, is located in Area 3.

The Pollack property is comprised of a mosaic of relatively high, well-drained Sassafras sandy loams, a prime setting for prehistoric and historical occupations. An aerial view of the Pollack site

PLATE 1
Aerial View of the Pollack Site (7K-C-203), Looking East
April 1991



looking towards the east clearly shows these settings (Plate 1). Since 1985, the site has been cultivated with no-till corn. The northern edge of Pollack property is bounded by a historically unplowed, 12.5 acre woodlot. This unplowed woodlot is along the south side of the Leipsic River and corresponds roughly to the initial limits of 7K-C-203 as the site was defined when it was nominated for listing on the National Register of Historic Places in 1989 (Riley et al. 1993). These woods consist of a mature stand of hardwoods, predominantly beeches and oaks.

Elevations in Area 3 range from approximately 30 feet above sea level along the western project boundary to 11 feet above sea level near the confluence of the Leipsic River and Alston Branch. An extensive tidal marsh borders the Leipsic, but the majority of Area 3 consists of moderately drained Sassafras sandy loam of up to 5% slope. Severely eroded slopes of up to 40% exist on the 15 foot bluffs located along the Leipsic River and Alston Branch.



Previous Surveys

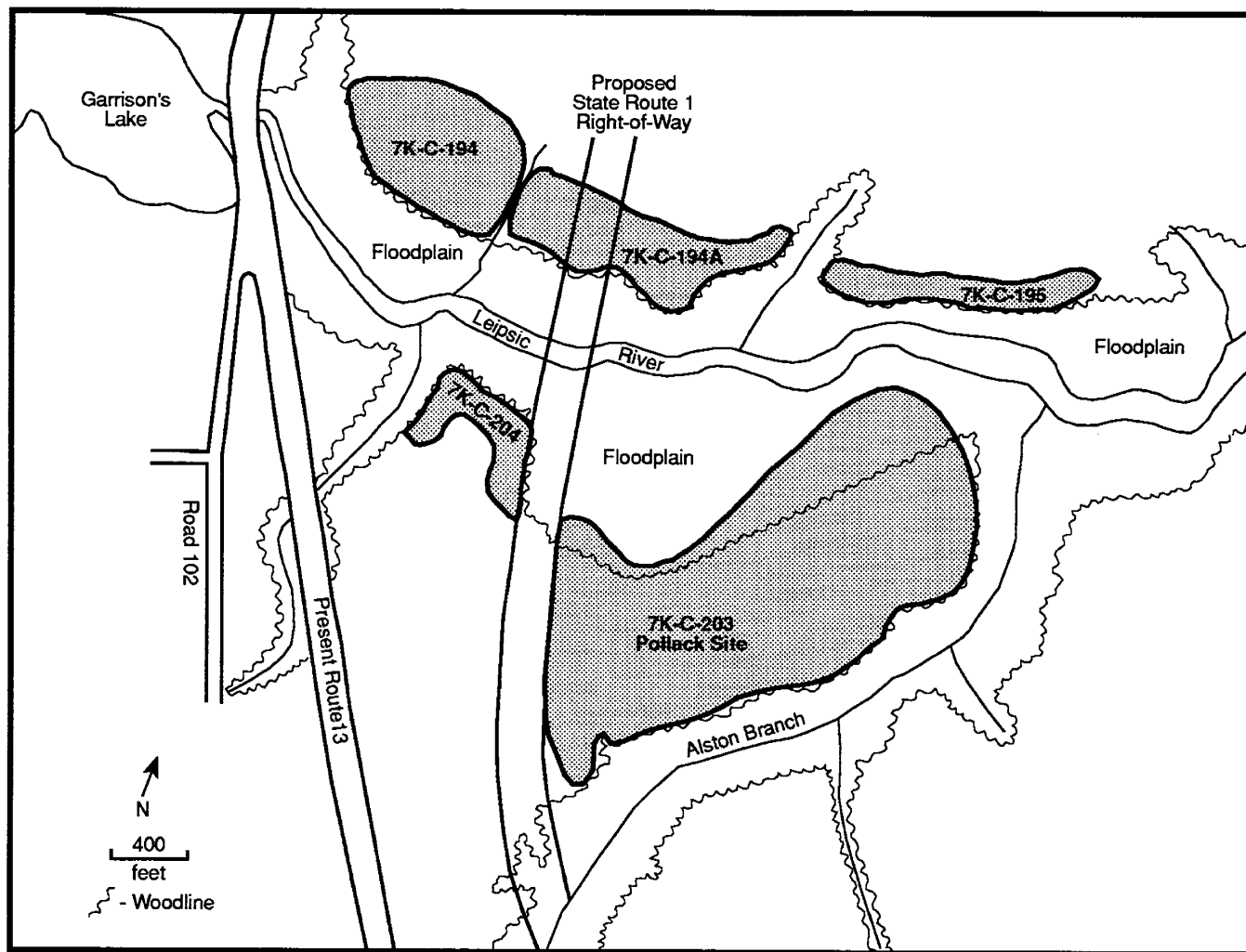
The Pollack site was first identified by pedestrian survey in 1985. The survey initially identified 7K-C-203 as a surface scatter of flakes and fire-cracked rock along the edge of the woodlot bordering the Leipsic River. The controlled surface collection was completed as part of the survey of the proposed State Route 1 corridor. Ground surface visibility was very poor, less than 5%. One fragment of shell-tempered prehistoric ceramic was found near the center of the field at a loci labeled 7K-C-202.

A subsequent pedestrian survey in August, 1988 under slightly improved surface visibility located a continuous scatter of fire-cracked rock and flakes along the present woodline south of the Leipsic River. This woodline corresponds to a sandy bluff approximately 15 feet above the swampy floodplain. Artifacts were found continuously between 7K-C-203 and 7K-C-202 indicating that 7K-C-202 is a surface find related to the larger 7K-C-203. Thus 7K-C-203 came to refer to the entire 50 acre agricultural field and adjacent 12 acre unplowed woodlot east of the proposed State Route 1 right-of-way.

The second pedestrian survey of 7K-C-203 in 1988 also found the first diagnostic prehistoric artifact at the site. This artifact was a rhyolite Koen-Crispin broadspear from the Woodland I Period (3000 B.C. - A.D. 1000). Initial Phase II studies consisted of a series of shovel test pits laid out in the woodlot along the Leipsic River bank in order to better define the site limits (Riley et al. 1993). These shovel test pits extended eastward through 7K-C-203 and into a historically unplowed woodlot which extended along the south bank of the Leipsic River from the known limits of 7K-C-203 to the confluence of the Leipsic River and Alston Branch. The woodlot measured approximately 500 meters (1700 feet) in length and covered about five hectares (12 acres).

Based upon the distribution of artifacts in the shovel test pits, 1 m x 1 m test units were later excavated in the woodlot along the shovel test pit line. Most of the shovel test pits and test units contained flakes, fire-cracked rocks, projectile points, or bifaces. Although no intact hearths or perceptible pit features were found in any of these initial test units, the presence of tools, charcoal, debitage, and fire-cracked rock at such depths indicates an occupation of some temporal duration and that features were probably present in undisturbed contexts. Artifacts were also encountered to a depth of 70 centimeters below ground surface indicating the presence of intact buried prehistoric landscapes and a high potential

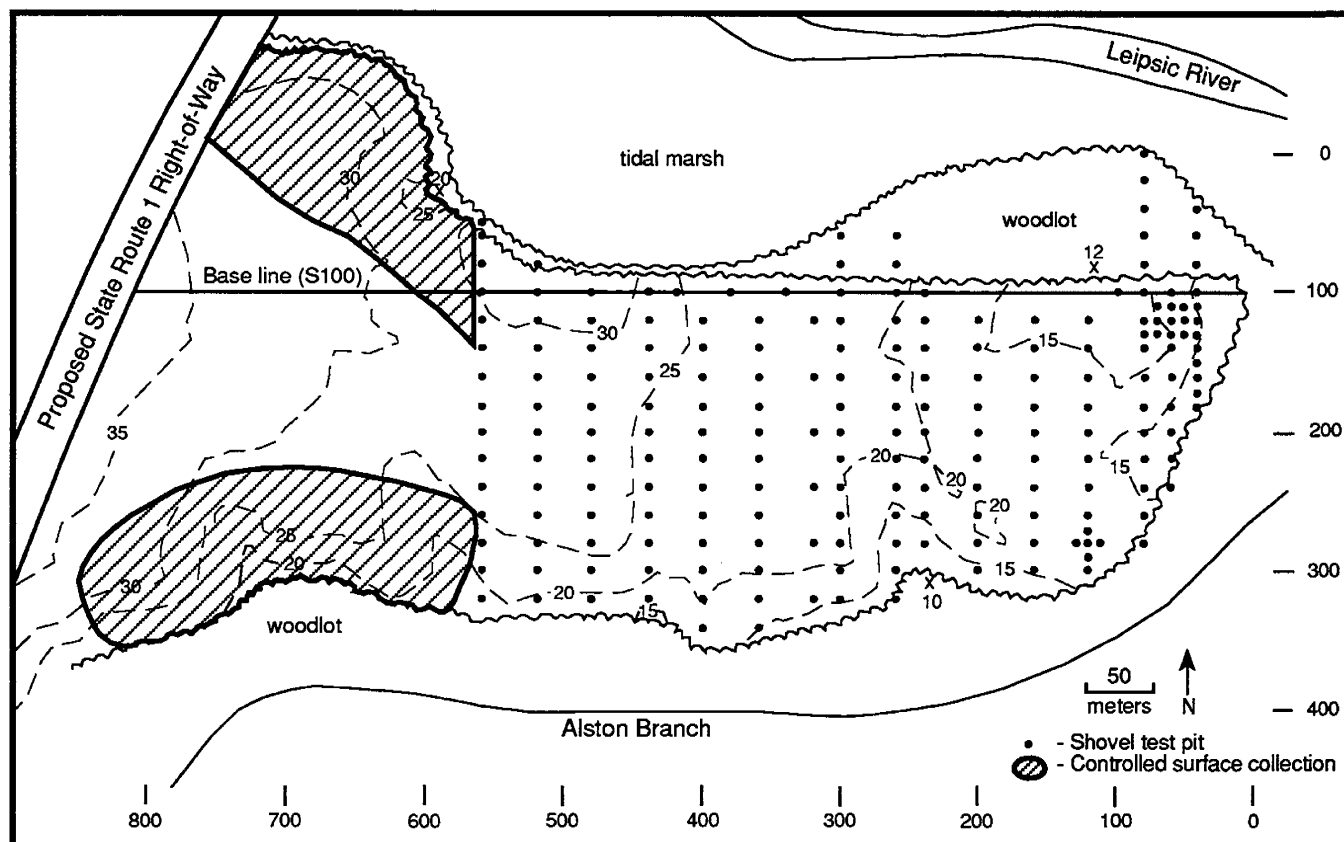
FIGURE 17
Location of all Sites in the Middle Leipsic River Valley
Archaeological District



for intact archaeological features. Additionally, while local chert, jasper, quartz, and quartzite were the most common raw materials, a significant percentage of all flakes were non-local argillite and rhyolite (5%).

The presence of non-local argillite and rhyolite and their place in the technology and social structure of the inhabitants of 7K-C-203 is an important research theme in current prehistoric archaeology in the Mid-Atlantic. This theme has already been explored at a number of other sites in the Leipsic, St. Jones, and Murderkill drainages of central Delaware (Custer, Bachman, and Grettler 1986; Custer and Bachman 1986; and Bachman, Grettler, and Custer 1988).

FIGURE 18
Location of all Phase I Tests, Pollack Site (7K-C-203)



On the basis of these attributes, 7K-C-203 was nominated to the National Register of Historic Places as part of the Middle Leipsic River Valley Archaeological District. This district consisted of 7K-C-203 and four associated sites (7K-C-194, 7K-C-194A, 7K-C-195 and 7K-C-204). The location of all five sites is shown in Figure 17. The closest site to the Pollack site was 7K-C-204, a small surface scatter located approximately 200 feet to the west. Site 7K-C-204 consisted of four separate loci indicated by seven flakes and 60 fragments of fire-cracked rock. The three other sites, 7K-C-194, 7K-C-194A and 7K-C-195, were located on the north bank of the Leipsic River.

Additional Phase I Survey

An additional Phase I survey was made of the plowed portions of 7K-C-203 in the spring of 1991. This survey was undertaken to locate and identify all significant cultural resources in the Pollack property

to be impacted by proposed borrow pit and wetland replacement. This additional survey was undertaken because of the low surface visibility over the entire 50 acre field and the high potential for significant cultural remains as indicated by earlier surveys.

The Phase I survey of the Pollack field consisted of a pedestrian survey of the entire field and adjacent woodlot, a controlled surface collection where visibility permitted, and the excavation of 202 shovel test pits over an area approximately 600 meters long and 300 meters wide (Figure 18). These tests were located along a single grid set over the entire 50 acre parcel. The baseline of this grid was arbitrarily established 10 meters south and parallel to the woodline along the northern edge of the field. This baseline, the S100 line, extended from the corner of the field near the confluence of Alston Branch and the Leipsic west 800 meters to the proposed State Route 1 Right-of-Way.

The location of this baseline and all Phase I tests in the Pollack field is shown in Figure 18. Shovel tests were excavated along the crests and immediate slopes of slight, five to ten feet high sandy rises that occurred throughout the project area. Previous Phase I and II testing along the Middle Leipsic River (Bachman, Grettler, and Custer 1988; Riley et al. 1993) had identified sites in similar settings.

Shovel testing began along transects 20 and 40 meters apart from the W40 line near the confluence of the Alston Branch and extended west to the W560 line. Shovel tests were then dug at 20 meter intervals along individual transects from the baseline at S100 south to the Alston Branch 200-340 meters away. The location and distribution of all prehistoric artifacts recovered from the W0 to W280 transects are shown in Figure 19. The same information for the remaining shovel tests located from the W300 to the W560 transect are shown in Figure 20. The distribution of all historical artifacts is similarly shown in Figures 21 and 22. Areas of severe erosion where artifacts in intact contexts were unlikely were pedestrian surveyed, but not shovel tested.

Phase I testing located three general areas of concentrated historical and prehistoric artifacts at the Pollack site. The location of these areas is shown in Figure 23. The largest of these areas was located near the confluence of the Leipsic River and Alston Branch. Historical and prehistoric artifacts were found consistently in this confluence area east of the W200 line from the baseline at S100 to Alston Branch near S300 (Figures 19 and 21). A total of 79 shovel tests were dug in and around this area. Overall

FIGURE 19

Phase I Prehistoric Artifact Distribution, STP Transects W0-W200, Pollack Site

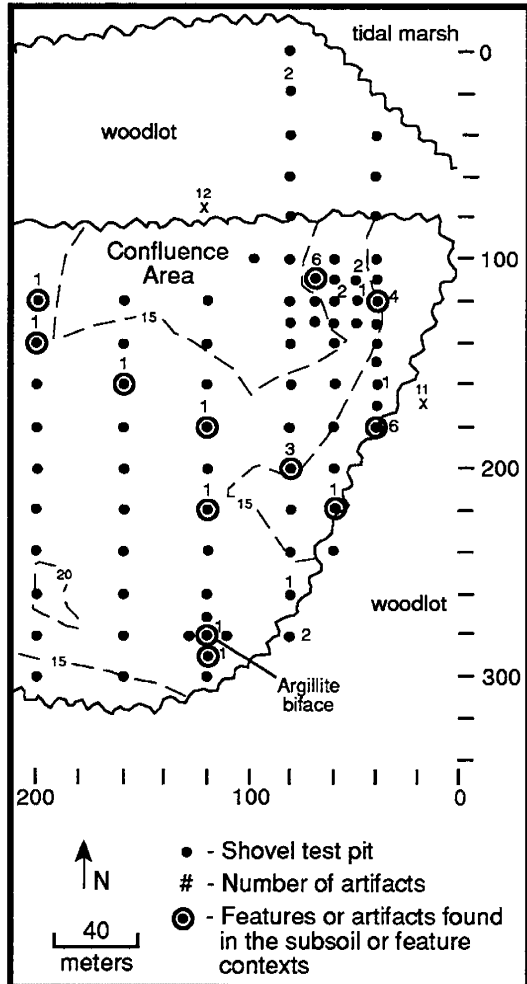
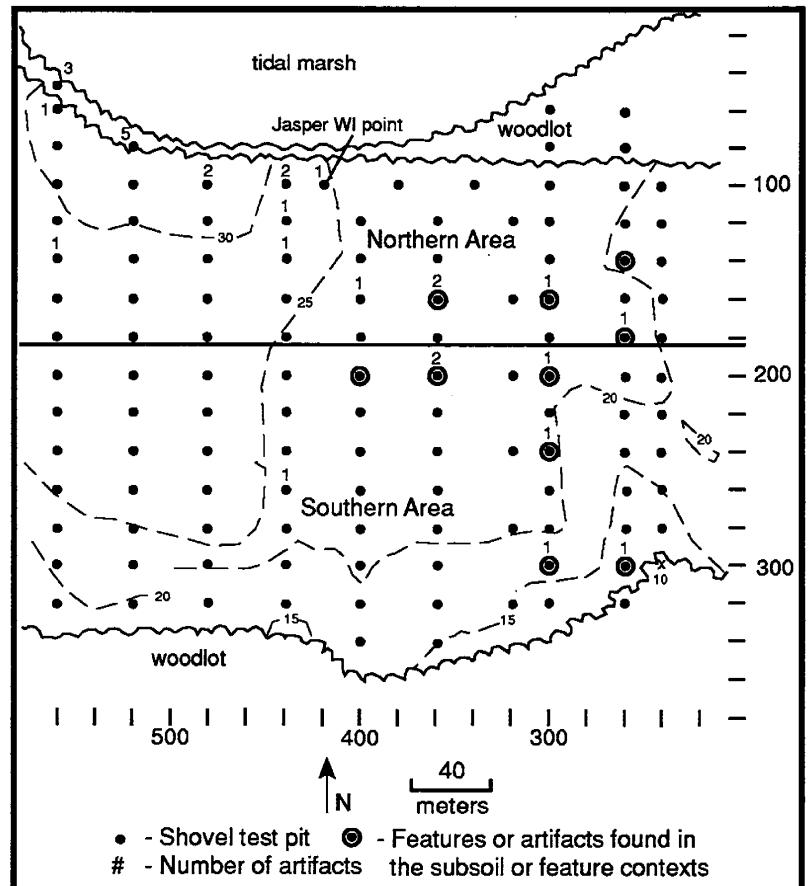


FIGURE 20

Phase I Prehistoric Artifact Distribution, STP Transects W220-W560, Pollack Site



artifact densities, however, were relatively low. All 9 of the shovel test pits containing historical artifacts contained less than four, and typically only one or two artifacts. All of the 19 shovel tests containing prehistoric artifacts contained less than six, and typically only one or two prehistoric artifacts.

Despite these low densities, diagnostic mid-eighteenth century and Woodland I artifacts were found. Diagnostic historical artifacts included three eighteenth century white clay pipe bowl fragments. These three artifacts were found with small bone, brick, and redware fragments in Shovel Test Pits S120 W80 and S120 W70. One of the pipe fragments from S120 W70 came from an intact historical feature below the plow zone. A profile of Shovel Test Pit S120 W70 is shown in Figure 24. This historical feature

FIGURE 21

Phase I Historical Artifact
Distribution, STP Transects
W0-W200, Pollack Site

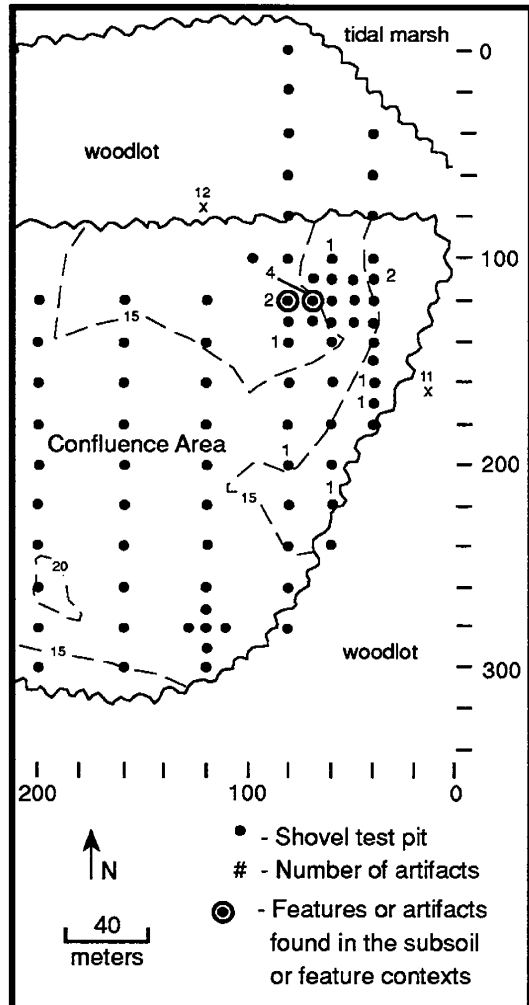
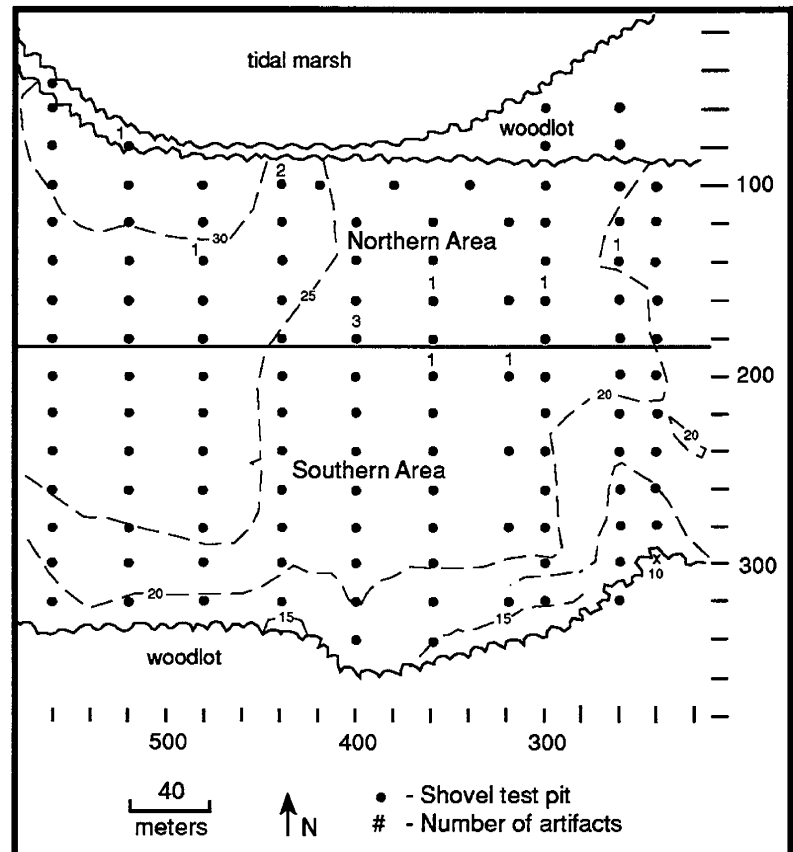


FIGURE 22

Phase I Historical Artifact
Distribution, STP Transects
W220-W560, Pollack Site



was defined by a dark gray-black silty sand stain. The silty sands of this stain contained small flecks of charcoal and reddened sands, indicating that the soil had been burnt. These feature soils ranged from 30 to 70 centimeters below ground surface. The 30 centimeters of plow zone above this feature was a dark brown, moderately organic silty sand. Below this feature was a sterile subsoil comprised of coarse yellow-brown sands mottled with fine gray clays and red sands. Shovel Test Pit S120 W70 contained sterile subsoil that extended from 55 cm to the end of excavation at 90 cm below ground surface.

One diagnostic prehistoric artifact was found near the confluence of the Leipsic River and Alston Branch. This artifact was a Woodland I argillite biface fragment found at S280 W120 near Alston Branch (Figure 19). Lithic flakes, charcoal, fire-cracked rock, and other nondiagnostic prehistoric artifacts were found in 19 other shovel tests in this area. No prehistoric pottery or other tools were recovered. All of the debitage except for one chalcedony flake was from local chert, jasper, quartz and quartzite. A summary of all of the artifacts found during additional Phase I and II shovel test pit and test unit excavations is given in Appendix I.

Although prehistoric artifact densities were low, five of the 36 shovel tests (14%) near the confluence (east of W100 and south of S100) recovered prehistoric artifacts from intact subsoil or feature contexts. These intact contexts were located below the plow zone and consisted of a thin layer of yellow-brown silty sands. The thickness of these buried intact soils varied from less than 10 cm to over 50 centimeters. A profile of one shovel test pit containing artifacts in these intact soils, Shovel Test Pit S120 W40, is shown in Figure 24. The presence of numerous small flecks of charcoal in this soil was interpreted as evidence of possible prehistoric features. Similar buried soils were associated with prehistoric features at the nearby Leipsic site, 7K-C-194A (Riley et al. 1993).

The other two areas of concentrated historical and prehistoric artifacts at the Pollack site were along the two woodlots bordering the property. The northern concentration bordered the unplowed woodlot along the Leipsic River and the southern concentration bordered the wooded fringe of Alston Branch (Figure 23). Between these two concentrations a total of 27 shovel tests were excavated and no significant artifacts were recovered.

The northern concentration consisted of a 500 meter long by 100 meter wide scatter of prehistoric artifacts from W200 to the eastern edge of the State Route 1 Right-of-Way at W700 (Figures 20, 22, and 23). This area was characterized by gently rolling, well-drained contours. Elevations in this area ranged up to 35 feet above sea level and included the highest spots in the entire 50 acre Pollack field. The westernmost portion of this northern area was less than 10 meters south of the wooded bluffs overlooking the Leipsic River floodplain. This westernmost portion near the proposed State Route 1 right-of-way was also successfully pedestrian surveyed because of slightly improved visibility (5%-10%).

A total of 56 shovel test pits were excavated in this northern area of the Pollack field. Artifacts were found in 11 tests (20%). Artifact densities were low, from one to five artifacts per test. The pedestrian survey of the westernmost portion found similar low densities of prehistoric artifacts. No significant concentrations of historical artifacts were found and only one diagnostic prehistoric artifact was found. This artifact was a Woodland I jasper triangular projectile point found in Shovel Test Pit S100 W420 (Figure 20).

Although no other diagnostic prehistoric artifacts were found in this northern area, four shovel tests encountered buried intact soils or prehistoric features. Three of these four shovel tests also found prehistoric flakes and fire-cracked rock in these intact contexts. Both contexts consisted of yellow-brown silty sands between the plow zone and red-brown sand and gravel subsoil. These soils were identical to those found near the confluence and shown in Figure 24. The presence of charcoal in some of these soils indicated prehistoric features.

The southern concentration of artifacts was located in a 600 meter long and 50 to 100 meter wide band along Alston Branch (Figure 23). This band extended from W200 to W800. This southern area was more severely eroded than either the confluence or northern area. The southern area was bisected by three large eroded ravines incised nearly eight vertical feet into the surrounding sandy ridges. These eroded areas are the remains of ancient ephemeral drainages into Alston Branch. These eroded areas were pedestrian surveyed (visibility 10%-25%), but not shovel tested. Shovel testing was limited to the less defaulted high ground between these eroded areas.

A total of 67 shovel tests were excavated in the southern part of the Pollack field. Historical artifacts were found in two of these tests and very low densities of prehistoric artifacts were found during the pedestrian survey (Figure 20). All three of the flakes recovered came from plow zone contexts. No diagnostic prehistoric artifacts were recovered during either shovel testing or pedestrian survey.

The only exception to these areas of low artifact density was a concentration of brick, olive bottle glass, and redware fragments on a small, moderately eroded knoll near the proposed State Route 1 Right-of-Way. These artifacts were found between W740 and W800 (Figure 23). No diagnostic ceramics or other historical artifacts were found, but the presence of olive bottle glass suggests an eighteenth century occupation.

Despite distinctly low artifact densities, the presence of diagnostic historical and prehistoric artifacts in all three areas indicates the presence of significant archaeological remains. Although the wide interval between shovel tests could not identify loci limits, the presence of diagnostic artifacts in both plow zone and feature contexts led to the determination that all three areas warranted Phase II testing.

Additional Phase II Survey

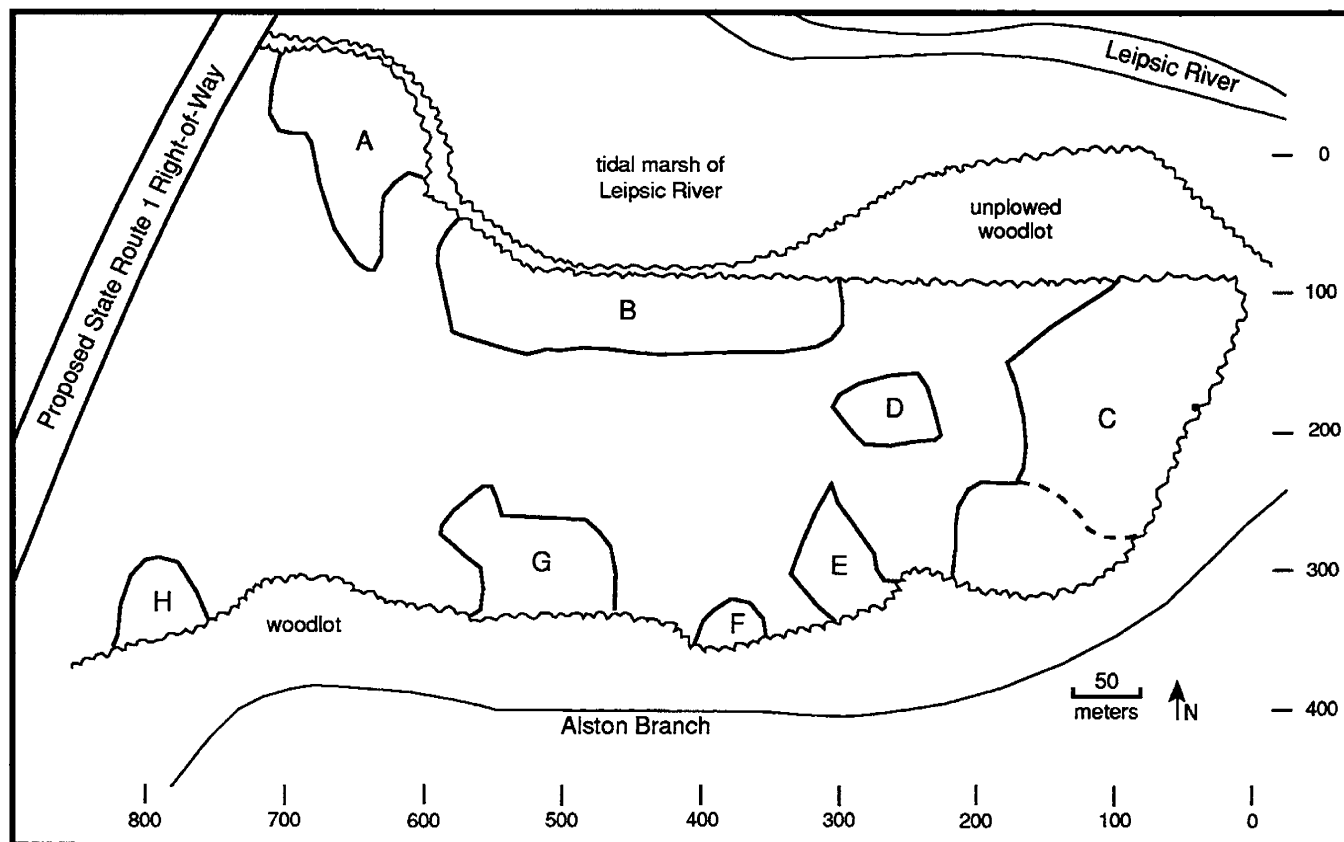
Phase II testing was undertaken at the Pollack site to identify the limits of the site and to generate a meaningful data recovery plan if avoidance proved impossible. As the Pollack site had already been listed on the National Register of Historic Places, Phase II testing emphasized site limits and developing an accurate data recovery plan.

Phase II testing of the site was conducted in the spring of 1991, immediately following the Phase I survey. Phase II consisted of the excavation of 1,585 1 m X 1 m test units in the three general areas of concentrated historical and prehistoric artifacts located by the Phase I survey (Figure 23). These test units were dug as part of a 1% sample of the nearly 20 acres of the Pollack field where artifacts were found during Phase I testing. Specifically, this 1% sample consisted of the excavation of one 1 m X 1 m test unit in every 10 m x 10 m block.

Phase II testing located eight distinct loci of historical and prehistoric activity at the Pollack site. The location of these eight areas, 7K-C-203A to C-203H, is shown in Figure 25. These areas also appear in an aerial view of the Pollack site shown in Plate 2. Significant prehistoric components were found in seven areas: 7K-C-203A, B, C, D, E, F, and G. Significant early eighteenth century components were also found in areas 7K-C-203C and C-203H. Each of these areas was defined by the presence of significant concentrations of artifacts, cultural features, and the presence of intact, artifact-bearing strata. The presence of these characteristics clearly confirms the eligibility of 7K-C-203 for listing in the National Register of Historic Places. The results of initial Phase II testing at each of the eight areas of the Pollack site will be presented next. A summary of all the historical and prehistoric artifacts recovered during Phase I and II plow zone testing is summarized in Appendix I.

FIGURE 25

Location of Phase II Areas, 7K-C-203A to 7K-C-203H, Pollack Site



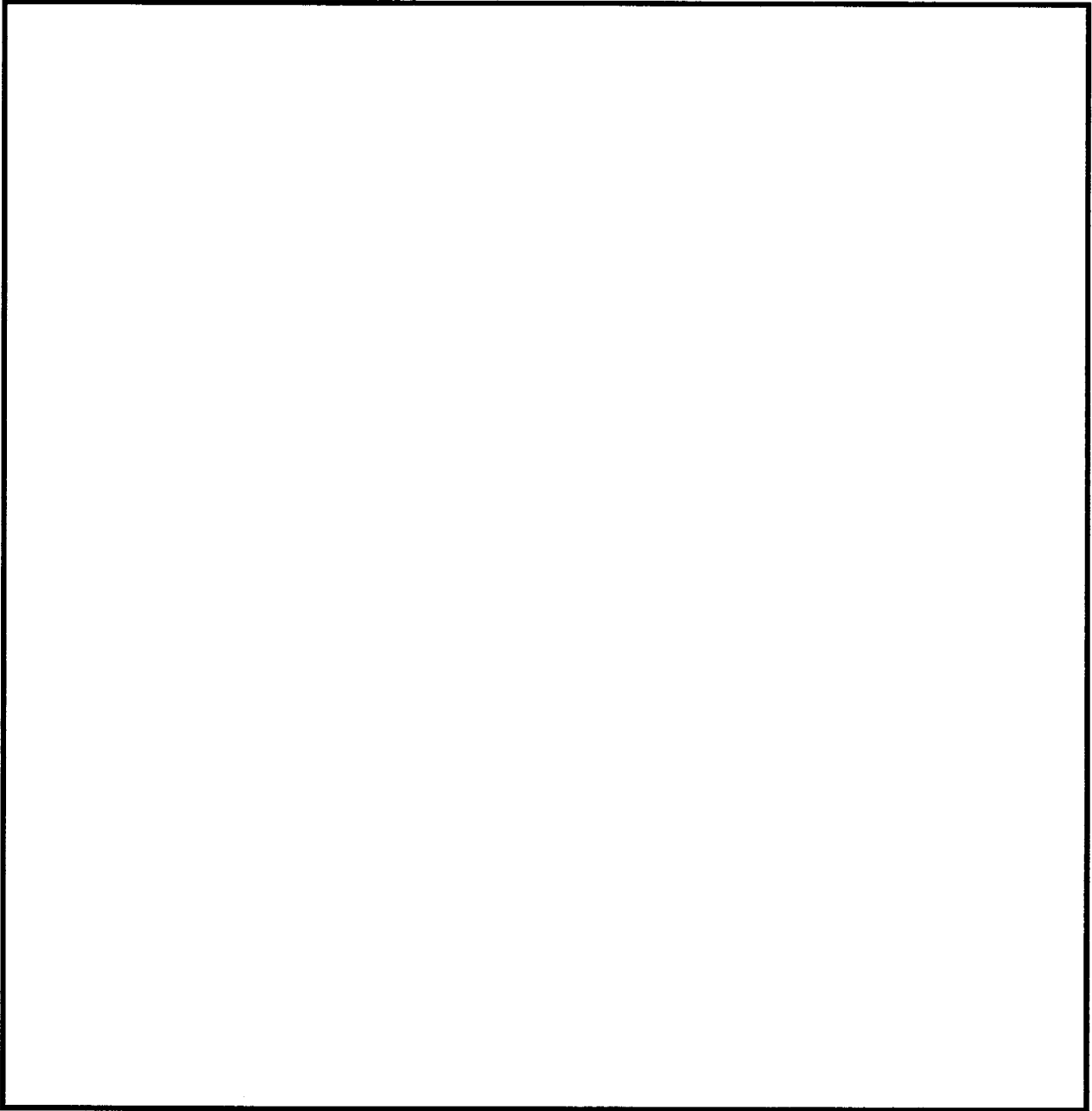
Area A (7K-C-203A)

Area A of the Pollack site is located in the extreme northwest corner of the parcel (Figure 25, Plate 2) near the eastern edge of the proposed State Route 1 Right-of-Way. Area A is bounded on the north by the bluff edge of the Leipsic River floodplain. This bluff edge is heavily wooded and approximately 15' above the floodplain. To the east, Area A is bounded by a deep, heavily eroded ephemeral drainage oriented to the adjacent floodplain. This drainage separates Area A from Area B to the east. Area A is bounded on the south and west by a large area of culturally sterile soils.

The limits of Area A are shown in Figure 26. Also shown in Figure 26 are total prehistoric artifact counts. The limits of 7K-C-203A were determined by topographical features, artifact densities, and the presence of cultural features. A total of 125 test units at 10 meter intervals were excavated during Phase II testing. Area A was defined as a 2.3 acre area of low to high artifact densities and intact cultural

PLATE 2

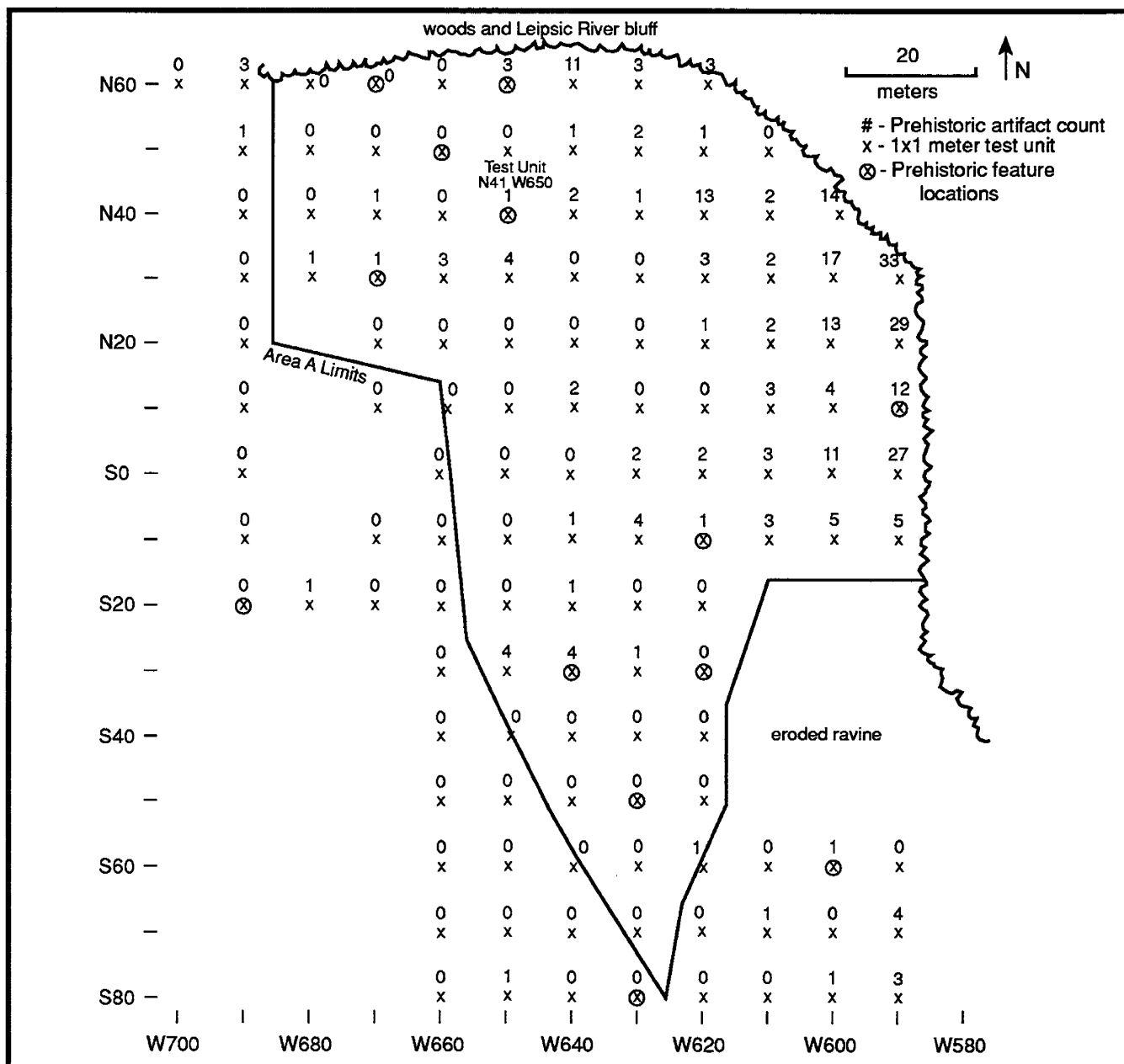
Aerial View of the Pollack Site (7K-C-203), Showing
Areas A-H, Looking West, April 1991



features. A total of 13 prehistoric features were identified and the location of these features is also shown in Figure 26.

Artifact densities in Area A ranged from one to 33 prehistoric artifacts per 1 m x 1 m test unit. Artifact densities were consistently highest (11-33 artifacts per test unit) along the woodline bordering

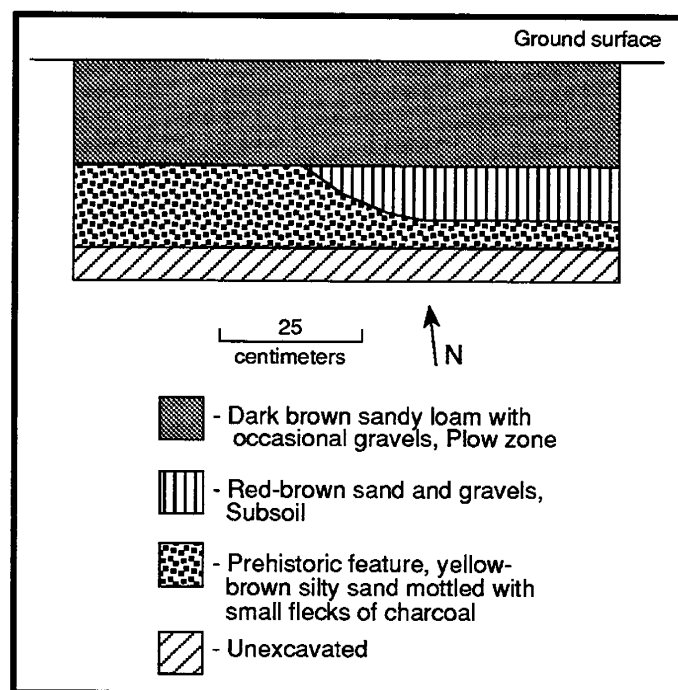
FIGURE 26
Prehistoric Artifact Count and Feature Distribution in Area A,
7K-C-203A



the Leipsic River bluff and floodplain (Figure 26). This area, however, was also the most deflated and prehistoric features were found more often in the better preserved southern and western parts of Area A (Figure 26).

The thirteen features in and around Area A were defined by deposits of medium yellow-brown silty sand mottled with varying amounts of small charcoal flecks. A profile of a typical test unit with

FIGURE 27
Profile of Test Unit N41 W650,
Area A, Pollack Site



a feature (Test Unit N41 W650) is shown in Figure 27. These features were not tested during the Phase II survey, but appeared to be similar to pit features excavated at the nearby Leipsic site (7K-C-194A). The Leipsic site is located on the north side of the Leipsic River almost directly across from Area A (Figure 17).

The general stratigraphy of Area A consisted of a simple dark brown sandy loam plow zone underlain by sterile yellow, red, and brown sand subsoil. Both of these soils are shown in Figure 27. Varying amounts of small, heavily worn gravels were found in the plow zone. The highest concentrations of

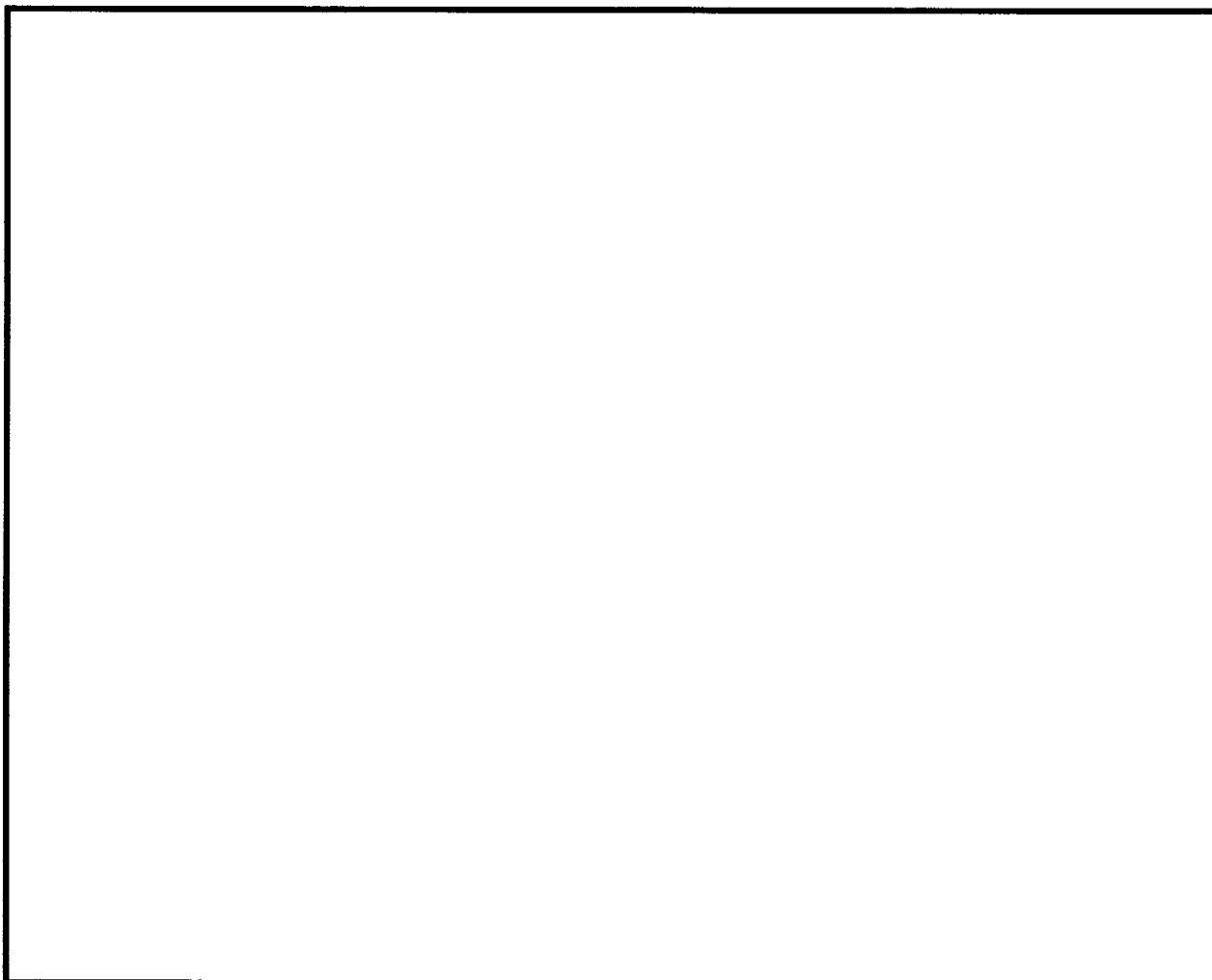
gravels indicating deflated soils were found along the eastern edge of Area A. Occasional prehistoric artifacts were found in this ravine, but their context was poor and this area was not included in Area A.

A total of 250 prehistoric artifacts were found during Phase II testing in Area A. All of these artifacts were found in the plow zone. Five diagnostic prehistoric artifacts were found and all date to the Woodland I period. Two of these artifacts were projectile points: two jasper stemmed points (Plate 3;C and E). The remaining three diagnostic artifacts were small sherds of prehistoric ceramic tentatively identified as Hell Island and Mockley wares. Although both sherds were small and poorly preserved, evidence of quartz and mica temper in one sherd identified it as Hell Island. The presence of grit and shell in the other sherd suggests Mockley ware. Hell Island ceramics have been associated with the Webb Complex in central Delaware and Mockley ceramics have been associated with the Carey Complex from the nearby Carey Farm site near Dover (Custer 1989:176). Both of the Webb and Carey complexes date to the late Woodland I period ca. A.D. 0 to A.D. 1000 (Custer 1989: 166).

Although no diagnostic artifacts from the later Woodland II period were found in Area A, the potential for these remains is high. Moreover, the presence of prehistoric artifacts and cultural features

PLATE 3

Sample of Woodland I Points from the Pollack Site
(7K-C-203)



A - Ironstone Stemmed Point B - Quartzite Stemmed Point C - Jasper Stemmed Point D - Argillite Stemmed Point E - Jasper Stemmed Point F - Jasper Stemmed Point G - Chert Stemmed Point H - Jasper Stemmed Point I - Chert Kirk Point (Archaic)

in both plow zone and undisturbed contexts led to the determination that Area A was a significant part of the Pollack site. The large size and integrity of Area A indicates a high potential for additional intact cultural remains. Thus Area A warrants Phase III data recovery operations if proposed borrow pit and wetland reclamation excavations are undertaken. No evidence of any significant historical occupation was identified in Area A.



A



B



C



D



E



F



G



H



I

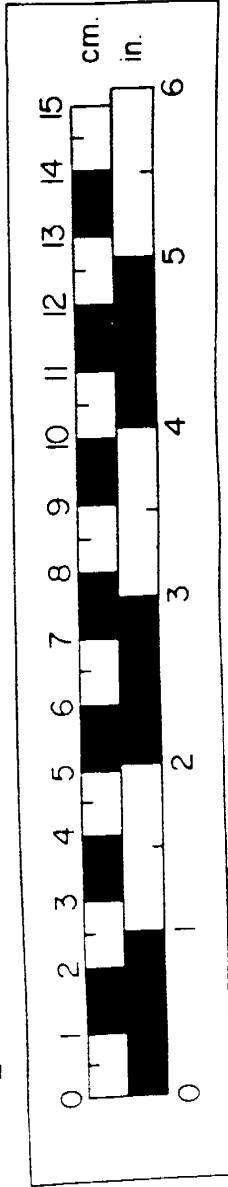
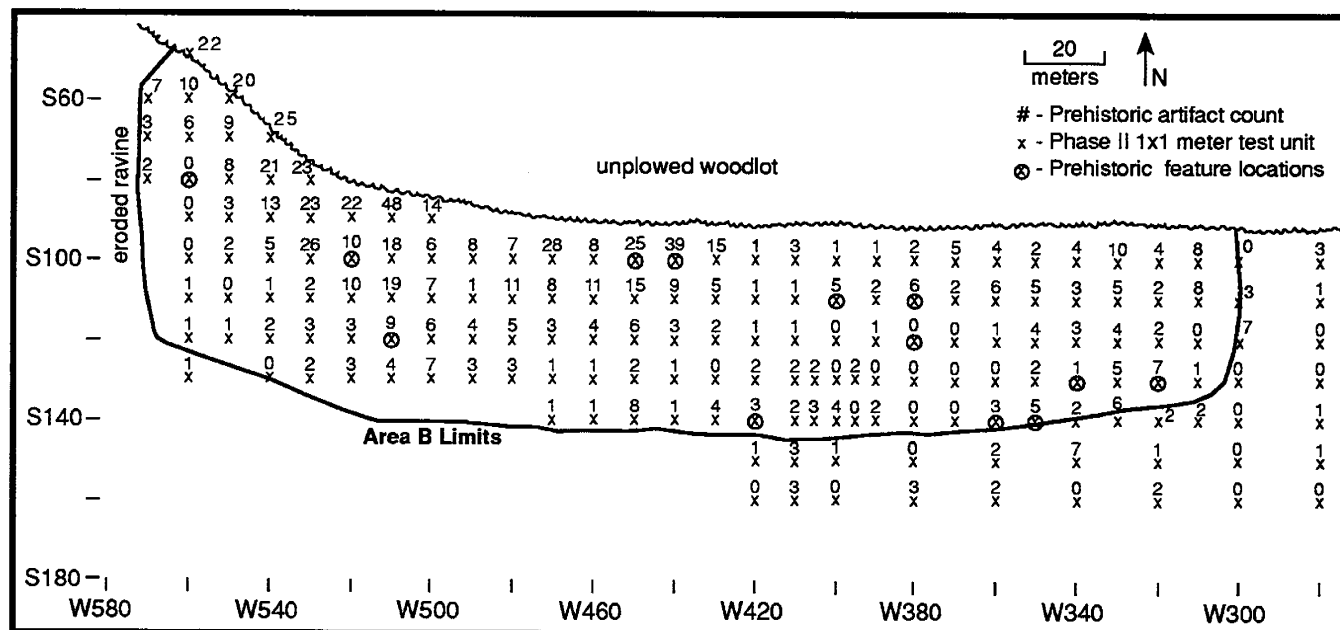


FIGURE 28
**Prehistoric Artifact Count and Feature Distribution in Area B,
 7K-C-203B**



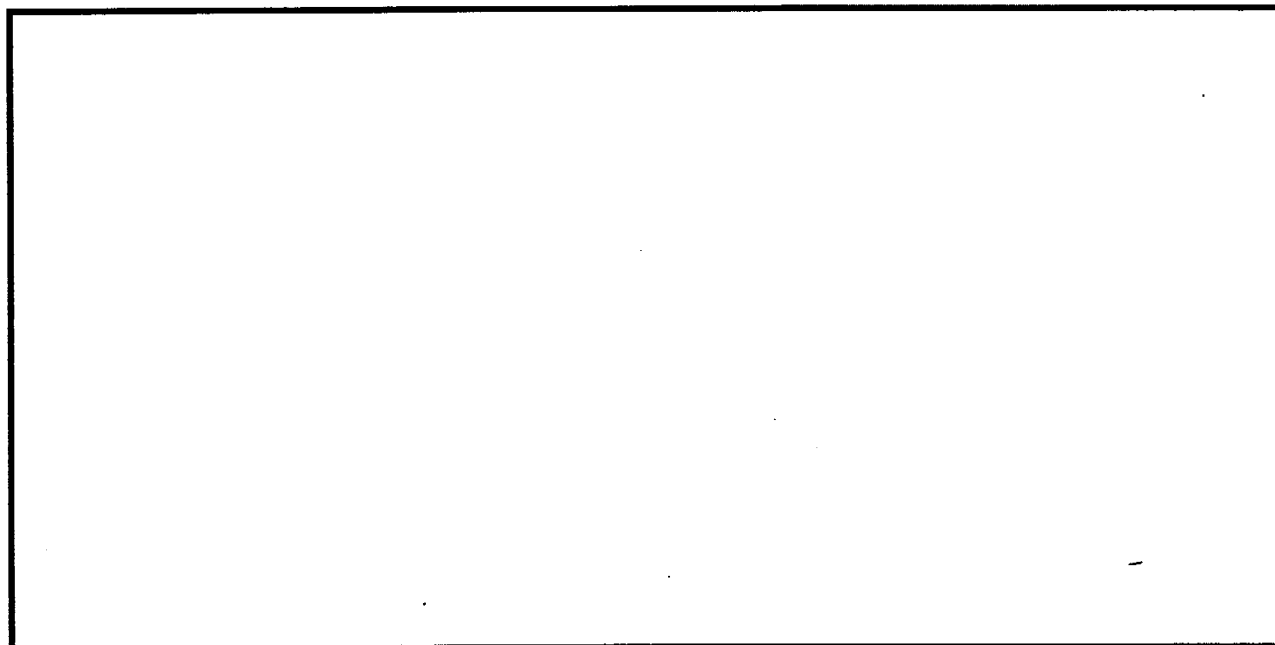
Area B (7K-C-203B)

Area B was defined as a 3.3 acre strip of relatively high artifact density along the northern edge of the Pollack field (Figure 25, Plate 2). Area B is located east of Area A and is bounded on the west by the shared eroded ravine. The southern and eastern limits of Area B were defined by a large area of very low artifact density in the middle of the Pollack field. The northern edge of Area B was defined by the treeline of the unplowed woodlot portion of the Pollack site. Phase I testing determined that Area B is a continuation of a larger occupation extending into this woodlot.

The limits of Area B and total prehistoric artifact counts are shown in Figure 28. A total of 172 test units were dug inside and near Area B. Prehistoric artifacts, primarily fire-cracked rock and local cobble chert, jasper, and quartz flakes, were recovered from 123 of the 141 test units (87%) in Area B. Artifact densities ranged from one to 39 artifacts per 1 m X 1 m test unit. Artifact densities were generally highest along the northern and western edges of Area B. These two edges are adjacent to the unplowed woodlot portion of 7K-C-203. On Figure 28, these two areas of high artifact density (greater than 10 artifacts per test unit) appear north of S100 and west of W440.

PLATE 4

Sample of Late Paleo-Indian and Archaic Points from the Pollack Site (7K-C-203)



A - Jasper Corner Notched Point B - Quartz Bifurcate Point C - Jasper Palmer Point D - Jasper Kirk Point

Prehistoric features were found throughout Area B (Figure 28). Despite slightly lower artifact densities, the eastern half of Area B was less eroded and thus prehistoric features were slightly more common. As with Area A, the prehistoric features in Area B were defined by undisturbed deposits of yellow-brown silty sand below the plow zone. These feature soils contained varying amounts of charcoal and are probably the remains of prehistoric pit houses or storage pits similar to those found at the nearby Leipsic site (7K-A-194A). The stratigraphy of Area B, however, was identical to that of Area A (Figure 27) and no significant differences in plow zone, feature, or subsoils were seen.

Fourteen diagnostic prehistoric artifacts were found in Area B during Phase II testing. Although artifacts from the Archaic and Woodland II periods were also found, the majority of the diagnostic artifacts in Area B dated to the Woodland I period. The Woodland I artifacts consisted of three jasper stemmed points, one argillite point tip, and two small sherds of probable Hell Island and Mockley ceramics. An Archaic occupation of Area B was indicated by a quartz bifurcate and a jasper Kirk projectile point (Plate 4, B and D). No diagnostic Woodland II period projectile points were found, but



A



B



C

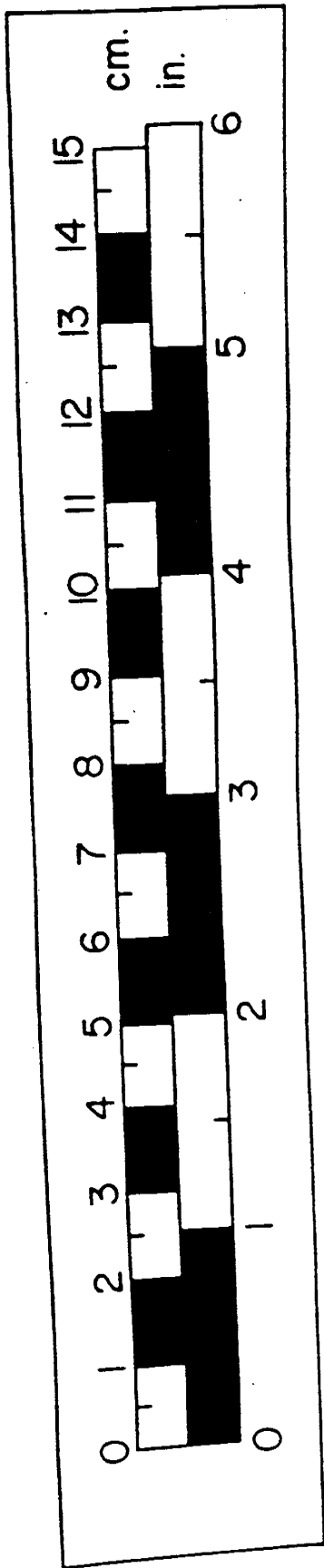
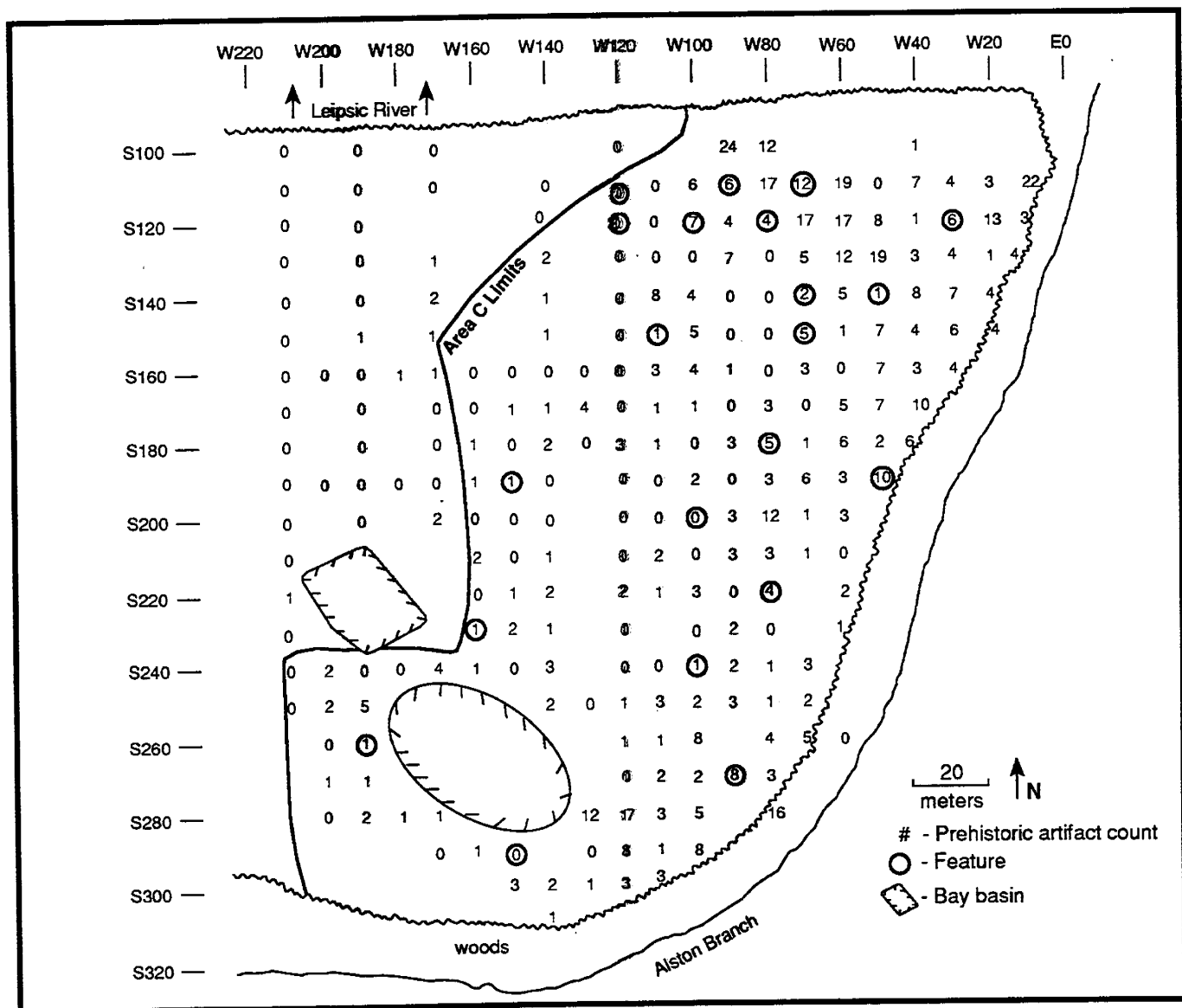


FIGURE 29
Prehistoric Artifact Count and Prehistoric and Historical
Feature Distributions in Area C, 7K-C-203C

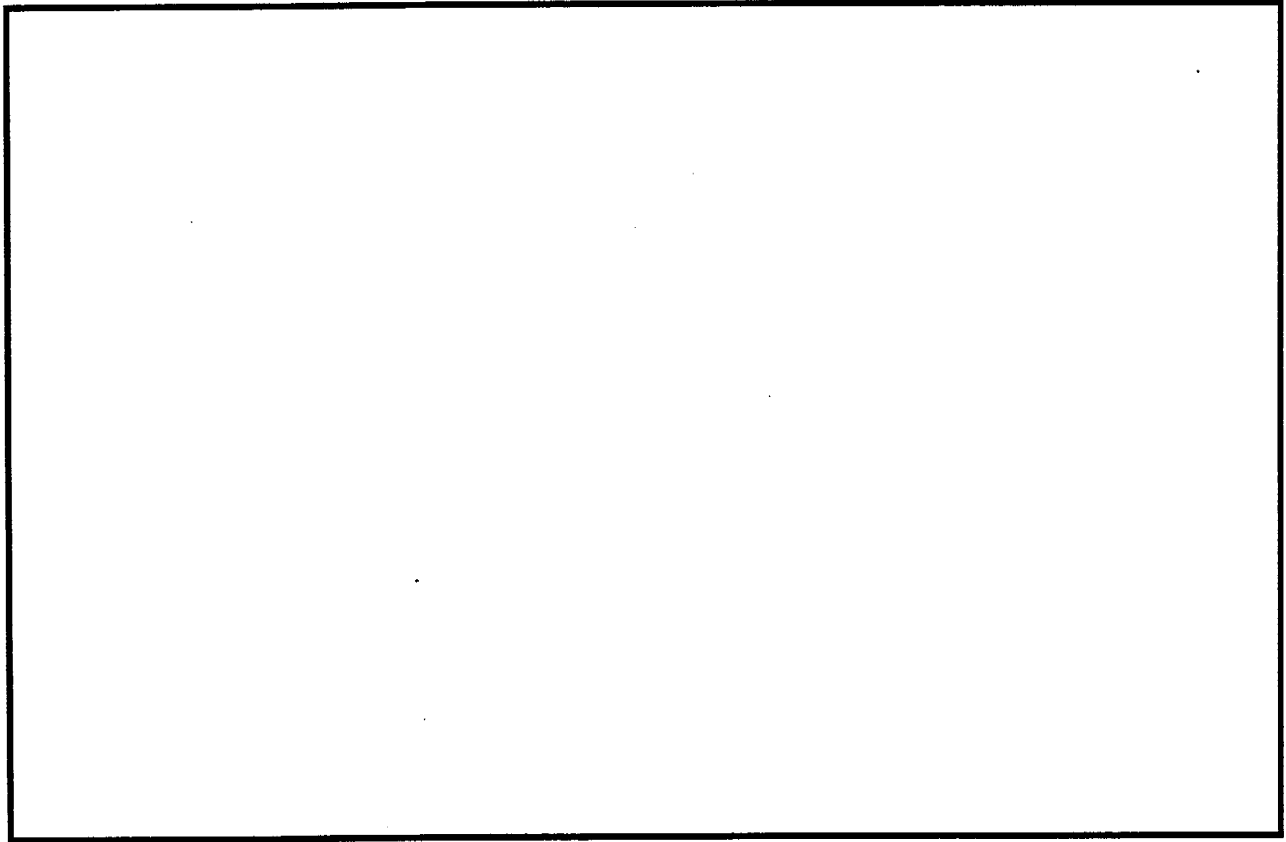


four small fragments of probable Minguannan and Townsend ceramics were found. No evidence of any significant historical remains were identified.

The presence of prehistoric artifacts and cultural features in both plow zone and undisturbed contexts led to the determination that Area B was a significant part of the Pollack site. The large size and integrity of Area B indicates a high potential for additional intact cultural remains. Thus Area B warrants Phase III data recovery operations if proposed borrow pit and wetland reclamation excavations are undertaken.

PLATE 5

1% Sample of Phase II Test Units in Area C of the Pollack Site (7K-C-203C), Looking East



Area C (7K-C-203C)

Area C was the largest area of prehistoric and historical activity found at the Pollack site. Area C was located in the northeast corner of the Pollack field near the confluence of the Alston Branch and Leipsic River (Figure 25, Plate 2). Area C was bounded on the north by the unplowed woodlot and bounded on the south and east by Alston Branch. The western limit of the site was defined by a large area of very low artifact density.

The limits of Area C and total prehistoric artifact density is shown in Figure 29. A total of 256 test units were excavated to define the limits of Area C. One unit was dug near the southwest corner of every 10 m x 10 m block. Some of these tests are shown in Plate 5. Two significant archaeological components were identified in the approximately 7.2 acres of Area C. The largest archaeological component was a prehistoric occupation that spanned the Archaic to Woodland II periods (6500 B.C.

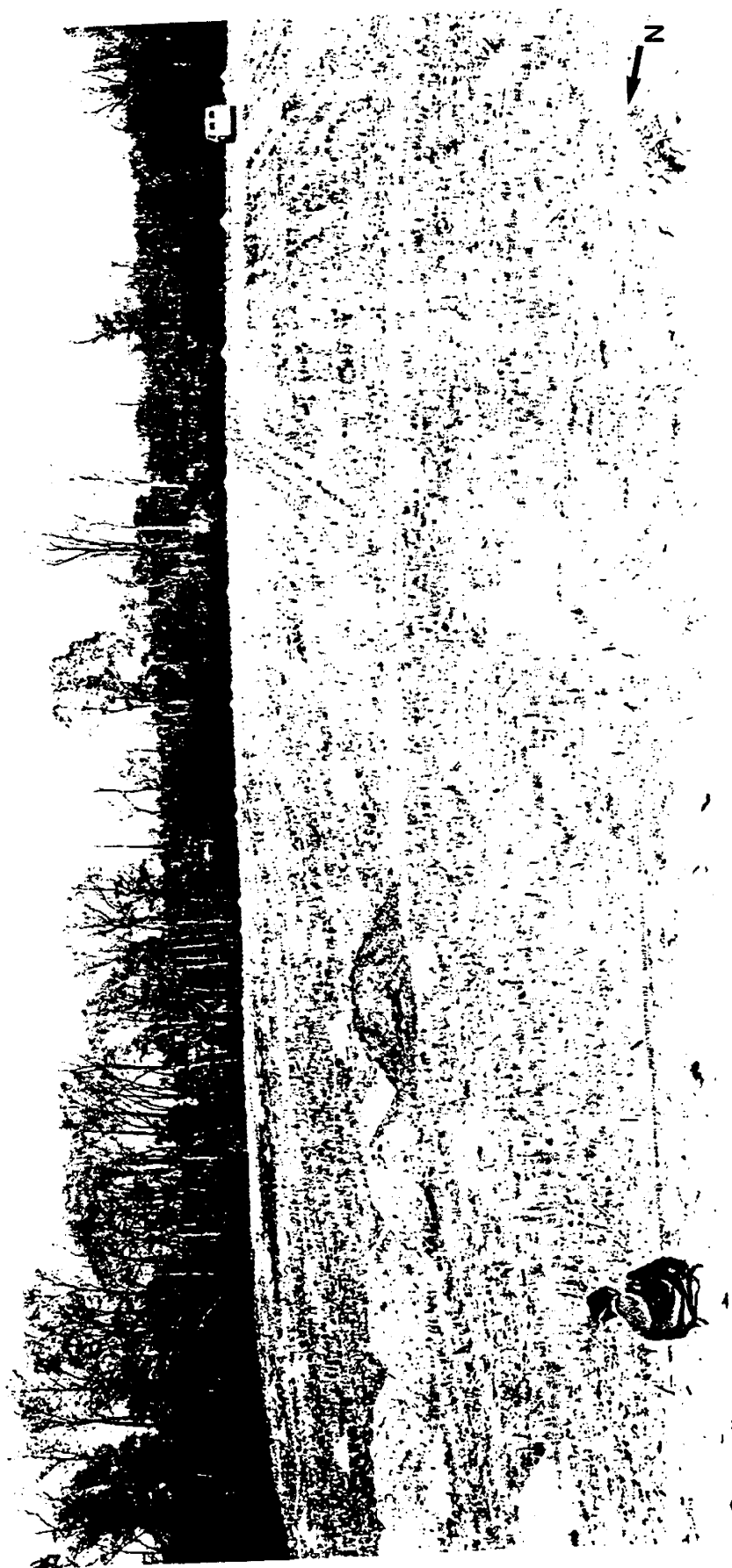
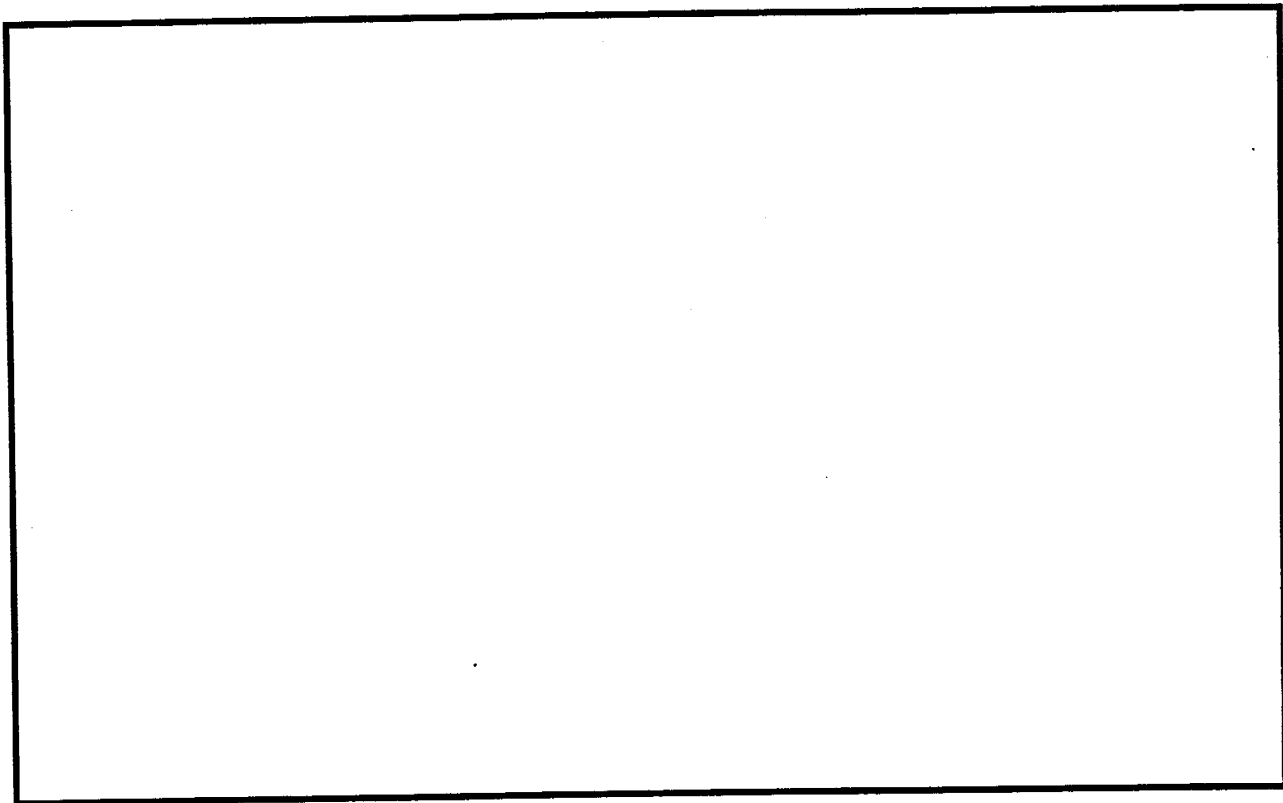


PLATE 6

Sample of Broadspears from the Pollack Site (7K-C-203)

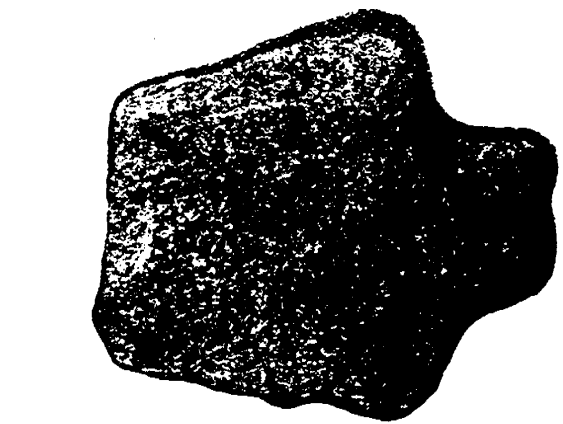


A - Argillite Broadsp~~ear~~ B - Rhyolite Broadsp~~ear~~ C - Jasper Broadsp~~ear~~

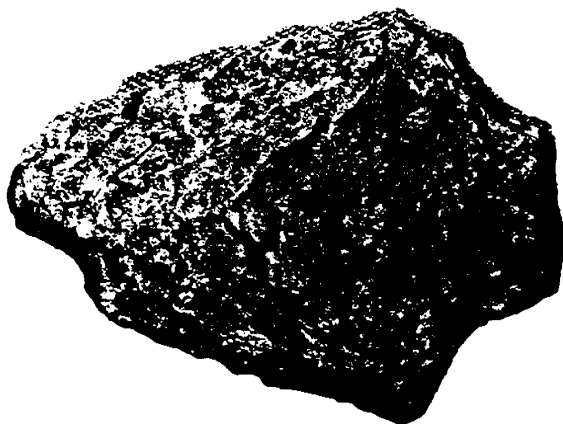
to A. D. 1650). Diagnostic artifacts from the Woodland I and Woodland II periods were recovered during Phase II testing. Prehistoric artifact densities ranged from one to 24 artifacts per test unit. As with the other areas of the Pollack site, prehistoric artifact densities were highest along the unplowed woodlot to the north and Alston Branch to the east and south. Significant concentrations of prehistoric artifacts, including argillite and rhyolite flakes, were found throughout Area C. Prehistoric features were also found under the plow zone throughout Area C (Figure 29). These prehistoric features were defined by the same yellow-brown silty sands and charcoal found in Areas A and B.

A total of 19 diagnostic prehistoric artifacts were found in Area C. Eleven of these artifacts were small sherds of probable Hell Island, Wolfe Neck, and Mockley ceramics. All of these ware types date to the Woodland I period. Two Minguannan sherds from the Woodland II period were also found in Area C.

The remaining six diagnostic artifacts were Woodland I jasper, ironstone, argillite, and quartz stemmed and triangle projectile points. Two Lehigh/Koens-Crispin broadspears, one made of argillite



A



B



C

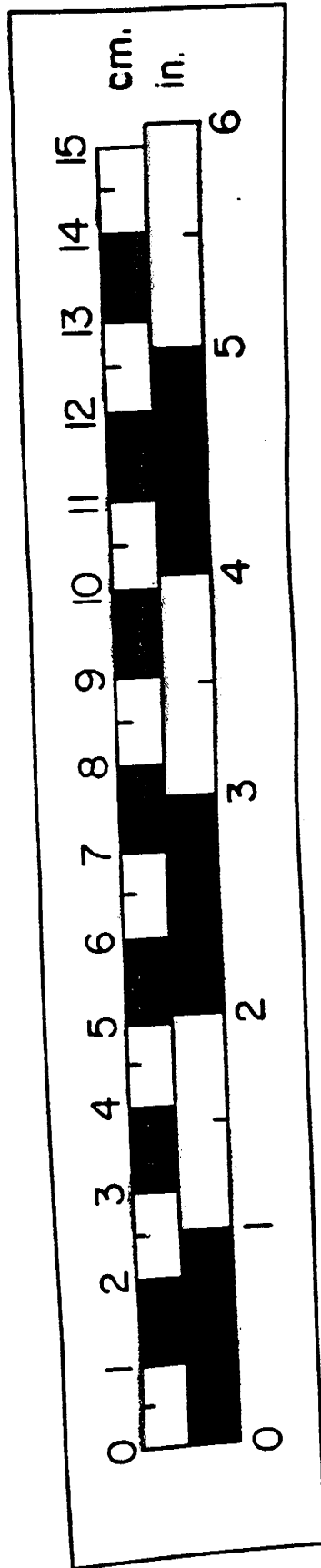
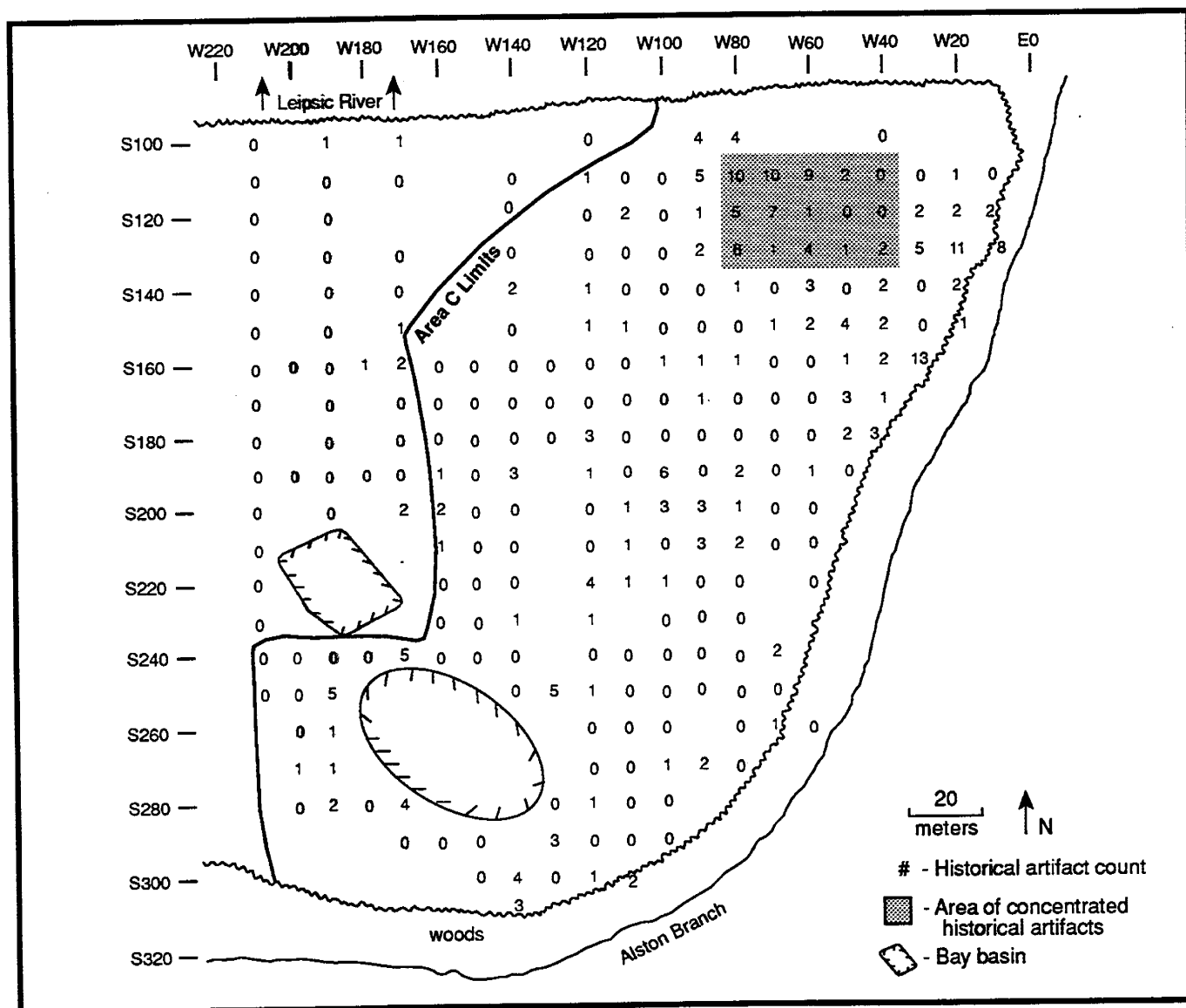


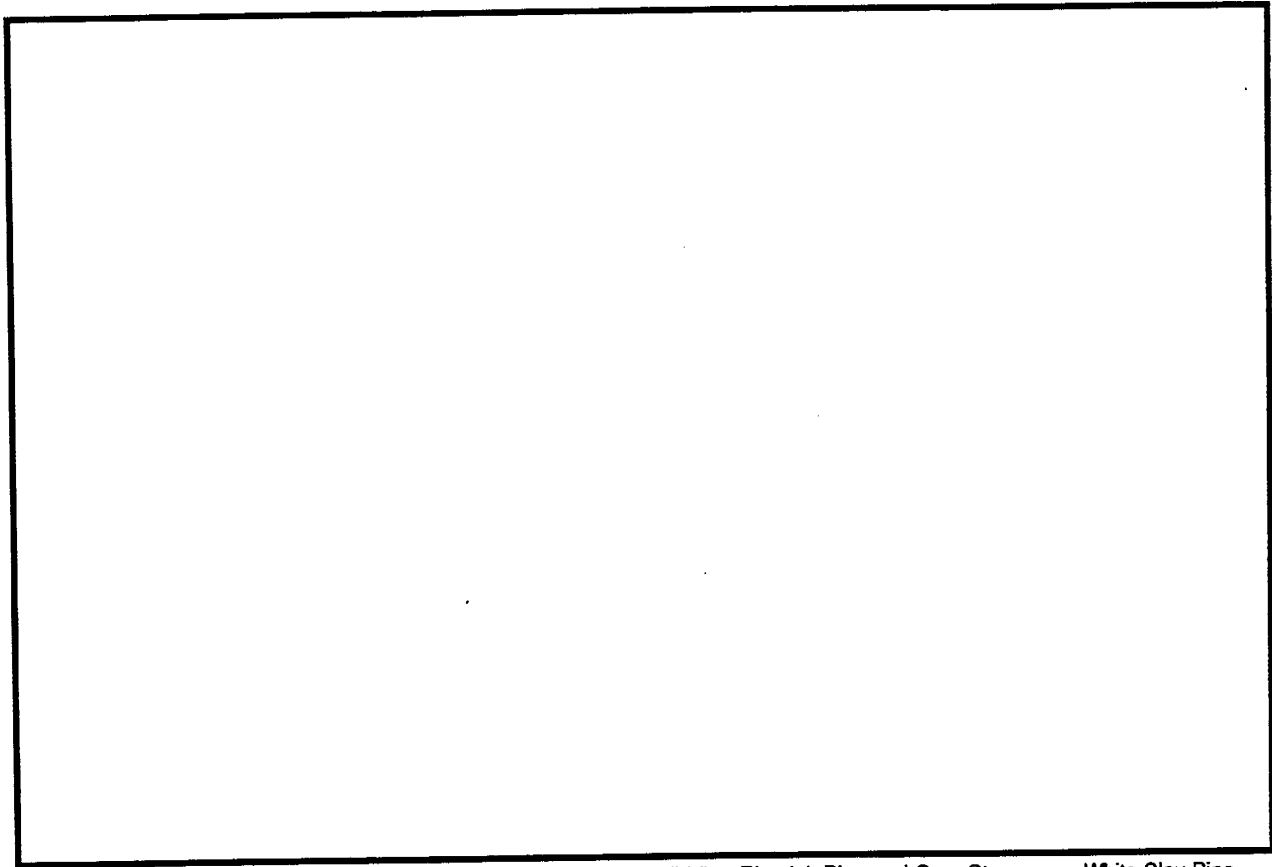
FIGURE 30
Historical Artifact Count in Area C, 7K-C-203C



and the other of rhyolite, were found. Both of these broadspears appear in Plate 6,A and B. The only other diagnostic argillite artifact was a stemmed point found near Alston Branch. This artifact also appears with other Woodland I stemmed points in Plate 3,D. The range of raw materials of these Woodland I points is typical of Woodland I sites in central Delaware where local cobble jaspers, cherts, quartzes and chalcedonies were the most common lithic resources utilized. This range of raw materials is also reflected in the large numbers of flakes, cores, and utilized flakes with cortex found throughout Area C (Appendix I).

PLATE 7

Late Seventeenth and Early Eighteenth Century Artifacts from Area C of the Pollack Site (7K-C-203C)

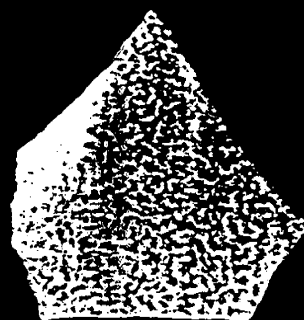


Top - Bellarmine Stoneware, Comb Decorated Staffordshire Middle - Rhenish Blue and Gray Stoneware, White Clay Pipe
Bottom - English Gunflints, Wrought Nails

The second significant archaeological occupation of Area C was a late seventeenth to early eighteenth century historical occupation. The primary evidence of this occupation was a concentration of diagnostic late seventeenth to early eighteenth century artifacts found in the northeast corner of Area C near the confluence of the Leipsic River and Alston Branch. The historical artifact counts for Area C showing this area of medium to high artifact density (four to ten artifacts per test unit) are shown in Figure 30.

Diagnostic late seventeenth to early eighteenth century artifacts from Area C included kaolin pipe stem fragments, cut nails, and olive green bottle glass fragments. Diagnostic eighteenth century ceramics included sherds of slip-decorated redwares, Staffordshire earthenwares, and English brown salt-glazed stoneware. A representative sample of these diagnostic early eighteenth century artifacts is shown in

Top



Middle



Bottom

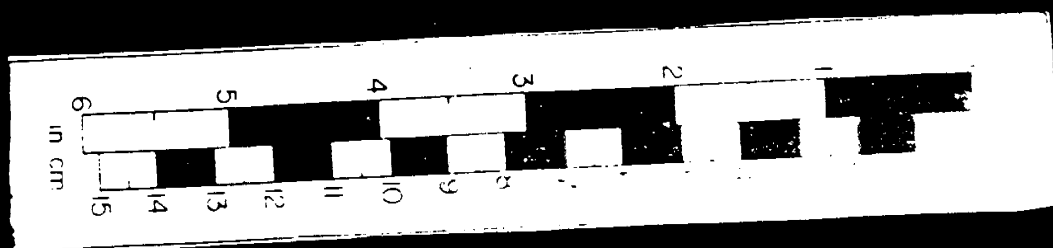
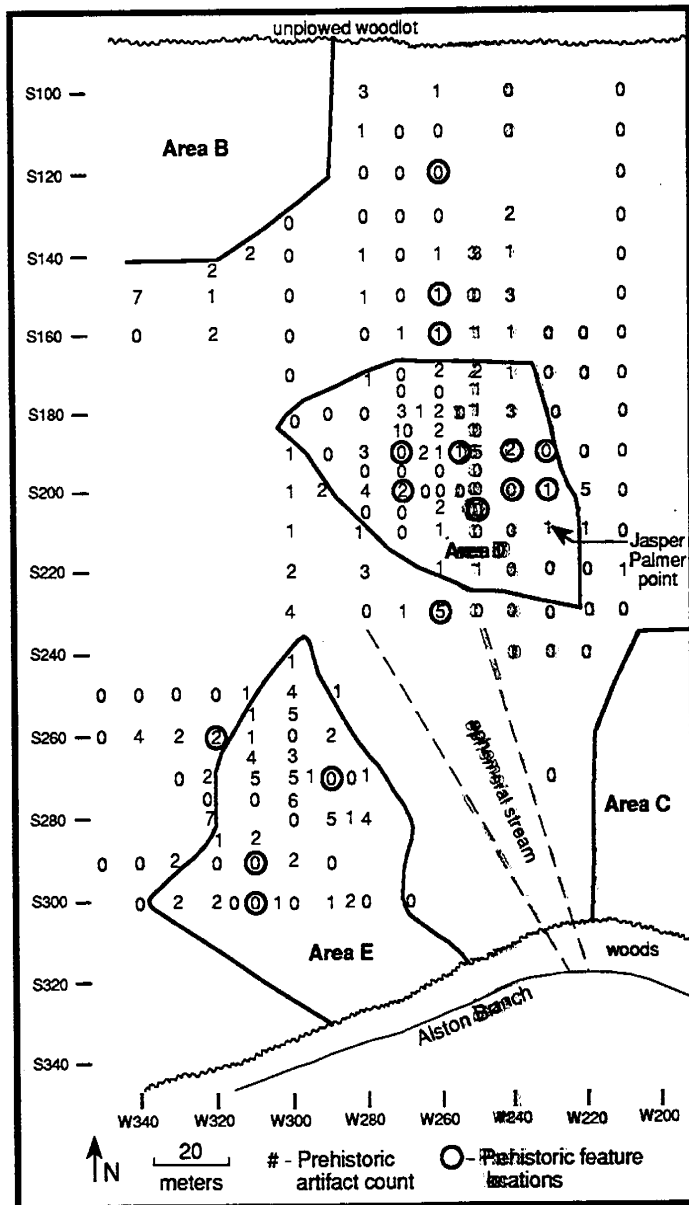


FIGURE 31

Prehistoric Artifact Count and Feature Distribution in Areas D and E, 7K-C-203D and 7K-C-203E



Areas D, E, F, and G (7K-C-203D, E, F, and G)

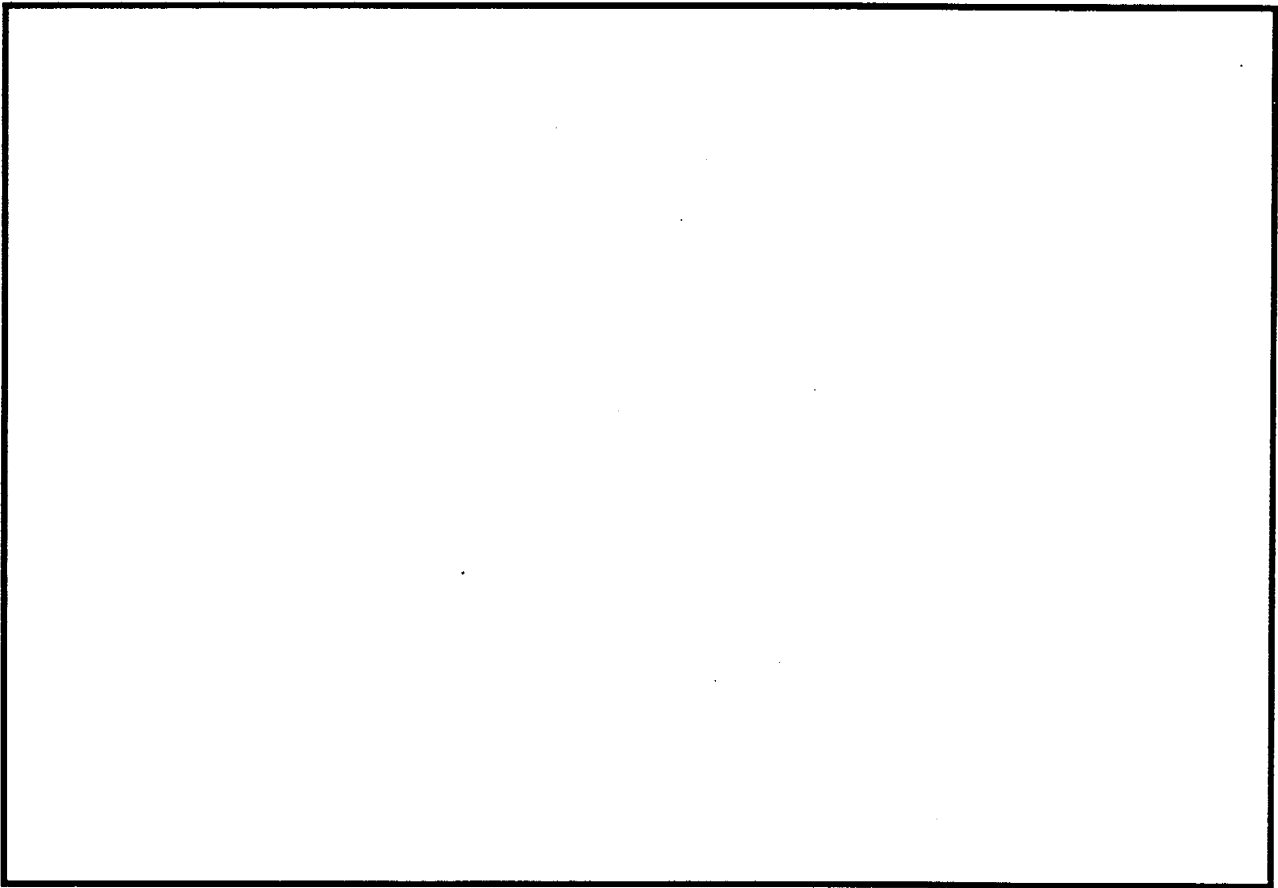
Four small areas of prehistoric activity were identified south of Areas A and B and west of Area C (Figure 25). All four of these areas, Areas D, E, F, and G, contained low and very low artifact densities and limited evidence of intact features. All four areas were also oriented to Alston Branch to the south. Evidence of moderate to severe erosion and deflation was encountered in all four areas. Overall site integrity in Areas D, E, F, and G was determined to be less than in Areas A, B, C, and H.

Plate 7. Square, shovel-cut post molds and probable trash pit features were also found. The edge of one of these historical trash features was found in Test Unit S119 W30 (Figure 29). The presence of both domestic and architectural artifacts and features indicates the remains of a farmstead and thus a high potential for additional intact eighteenth century features and artifact deposits.

The presence of historical and prehistoric artifacts and cultural features in both plow zone and undisturbed contexts led to the determination that Area C was a significant part of the Pollack site. The large size and integrity of Area C indicates a high potential for additional intact cultural remains. Thus Area C warrants Phase III data recovery operations if proposed borrow pit and wetland reclamation excavations are undertaken.

PLATE 8

Excavating Phase II Test Units in Area D of the Pollack Site (7K-C-203D), Looking West



Area D (7K-C-203D) was defined as a 0.7 acre concentration of prehistoric artifacts and features along Alston Branch (Figure 25, Plate 2). Area D was located on a slight, sandy knoll approximately midway between Areas B and C. This knoll was located at the head of a small, heavily eroded ephemeral drain into Alston Branch 80 meters to the south. The site limits and prehistoric artifact counts in Area D are shown in Figure 31. Although artifact densities were generally very low (less than two artifacts per test unit), one test unit at S184 W270 contained ten artifacts, the highest artifact density encountered in Area D. A photograph of Phase II testing in progress in Area D is reproduced in Plate 8.

Prehistoric features were encountered in 8 of the 54 test units (15%) excavated in Area D. Prehistoric features were concentrated along the top and adjacent slopes of the slight sandy knoll dominating Area D. Feature preservation appeared to be slightly greater along the immediate slopes of

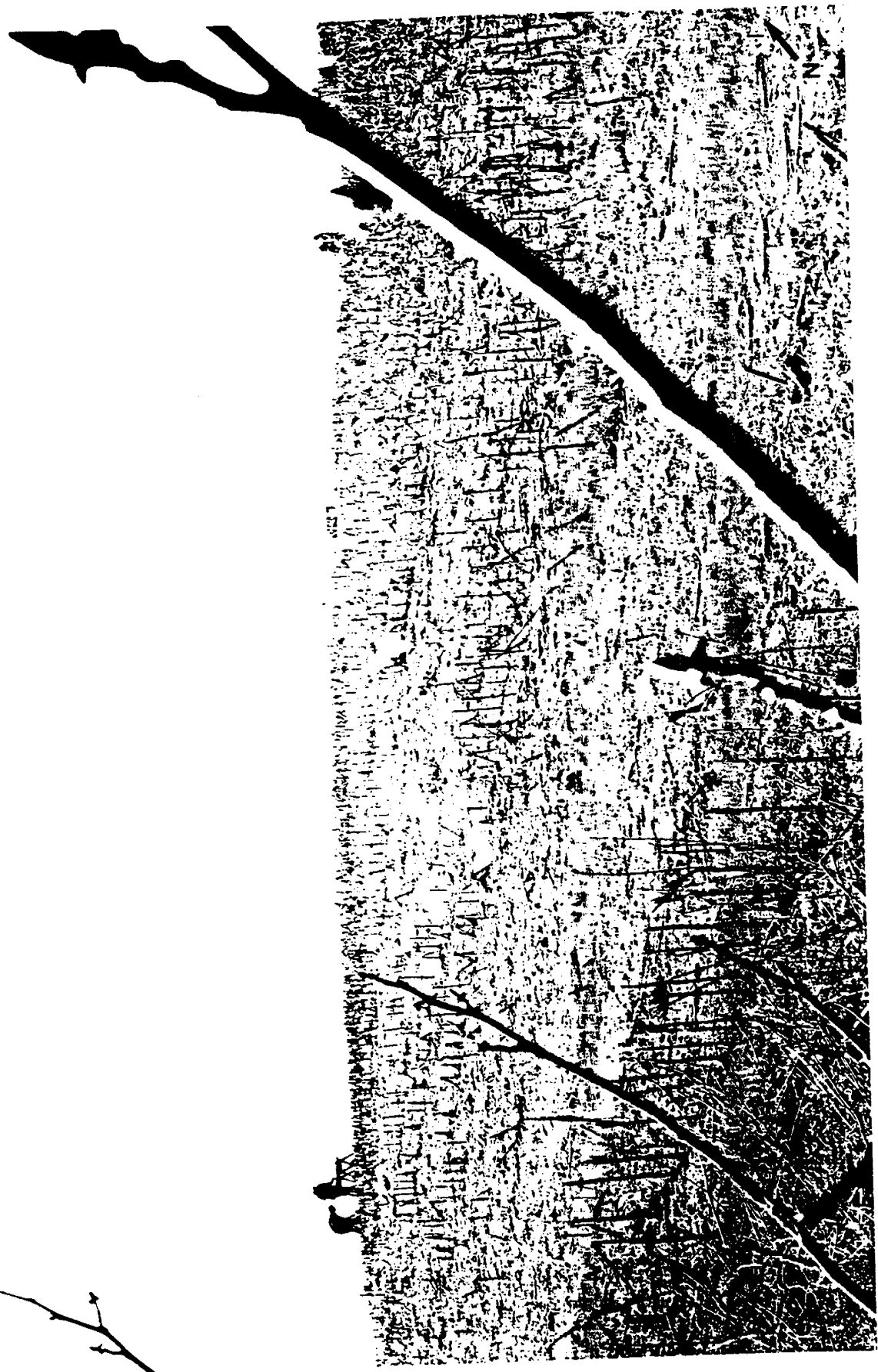
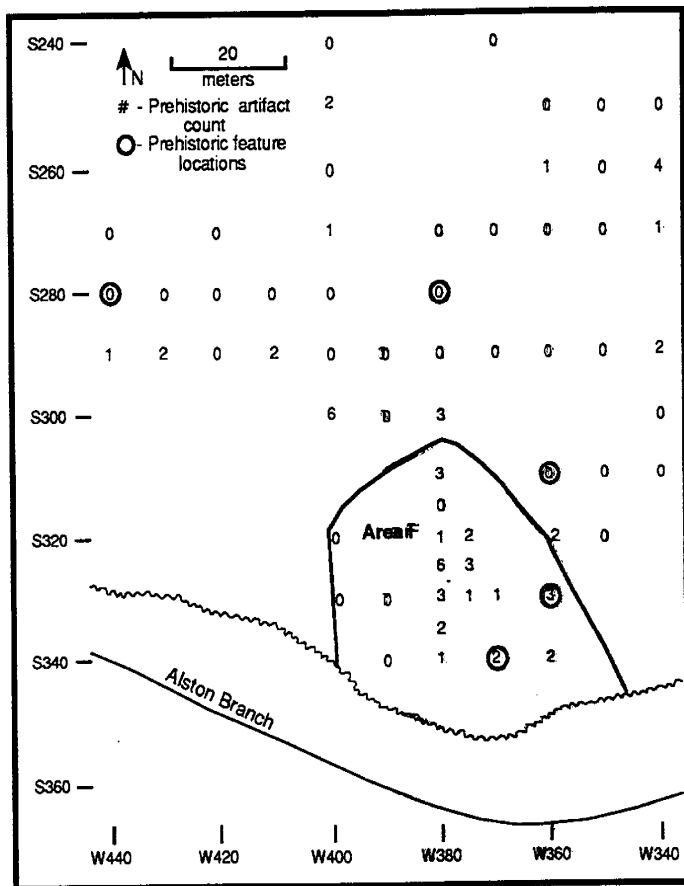


FIGURE 32

Prehistoric Artifact Count and Feature Distribution in Area F, 7K-C-203F



the knoll where soils from the moderately eroded crest insulated prehistoric features from subsequent plowing and erosion. As with the features found in Areas E, F, and G, the features in Area D were defined by the same yellow-brown silty sand and charcoal as elsewhere at the Pollack site.

Immediately north and south of Area D were more significantly eroded areas where four poorly-preserved prehistoric features on the W260 line were found (Figure 31). These four features were excluded from Area D because of poor preservation and extensive soil deflation. Thus the site limits of Area D correspond to site integrity, artifact densities, and presence of intact, cultural features.

Area E (7K-C-203E) was identified as a small, 0.9 acre area of low prehistoric artifact

density and occasional prehistoric features southwest of Area D and west of Area C (Figure 25, Plate 2). Area E was located along the west side of the ephemeral stream separating 7K-C-203D and 7K-C-203C. Moderate erosion was encountered throughout Area E and the limits of this area were determined by site integrity, artifact densities, and the presence of cultural features. The eastern and southern parts of Area E were the most severely eroded areas. Despite the soil deflation in Area E, significant concentrations of prehistoric artifacts and features in intact contexts were located by Phase II testing.

Prehistoric artifacts were recovered from the plow zone in 24 of the 36 total test units (67%) excavated in Area E. Artifact densities were consistently low and ranged from one to six artifacts per test unit (Figure 31). The highest relative densities of artifacts (four to six artifacts per test unit) were found along a sandy ridge parallel to the W300 line. This slight ridge was oriented adjacent to the

ephemeral stream to the east and perpendicular to Alston Branch to the south. Evidence of three prehistoric features were found along the eastern and western slopes of this ridge (Figure 31). Features were found in a similarly protected setting in adjacent Areas C and D.

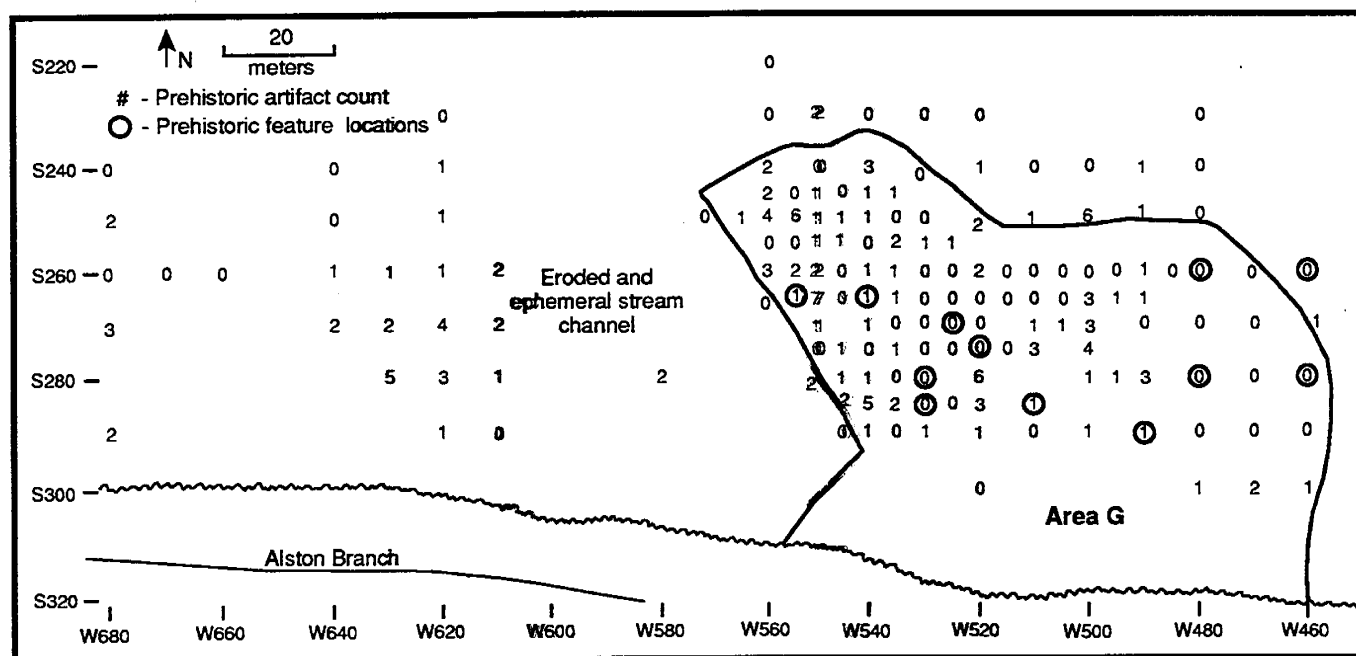
Area F (7K-C-203F) was defined as a small area of prehistoric artifacts and intact prehistoric features west of Area E (Figure 25, Plate 2). Area F consisted of a gradually sloping terrace oriented to Alston Branch to the south. Although the entire 0.3 acre of this loci was moderately eroded, prehistoric artifacts and features were located by Phase II testing. The limits and prehistoric artifact counts at 7K-C-203F are shown in Figure 32. Prehistoric artifact densities were consistently low (less than three artifacts per test unit). One test unit at S324 W380, however, recovered six prehistoric artifacts.

One diagnostic prehistoric artifact was found in Area F. The artifact was a rhyolite Woodland I stemmed point. The presence of two prehistoric features in Area F indicated the potential for further artifacts and intact features (Figure 32). Evidence of three additional prehistoric features was found north of Area F in areas of very low artifact density (one to two artifacts per test unit) and moderate to severe erosion. Thus the limits of Area F were determined by artifact density, site preservation, and the presence of prehistoric features. Both of the prehistoric features in Area F were comprised of dark yellow-brown silty sands and charcoal preserved by slope wash from the surrounding higher ground. Prehistoric features were found in similar settings in Areas C, D, and E.

Area G (7K-C-203G) consisted of a small 1.6 acre area of low artifact and feature density 60 meters west of Area F (Figure 25, Plate 2). Area G was dominated by a slight sandy ridge oriented to Alston Branch 20 meters to the south. Area G was bounded on the west and east by heavily eroded ephemeral drainages and associated areas of no prehistoric artifacts. The southern boundary of Area G was the woodline of Alston Branch. The site limits and total prehistoric artifact counts in Area G are shown in Figure 33. The limits of 7K-C-203G were determined by site integrity, artifact densities, and the location of cultural features.

Artifact densities in Area G ranged from one to seven prehistoric artifacts per test unit. Artifact densities were highest (two or more artifacts per test) along the western edge of Area G (Figure 33). This western part of 7K-C-203G was sited along the eastern edge of a deep, heavily eroded ephemeral stream channel. Test units were excavated along both sides of this channel, but only the eastern side of the

FIGURE 33
Prehistoric Artifact Count and Feature Distribution in Area G,
7K-C-203G



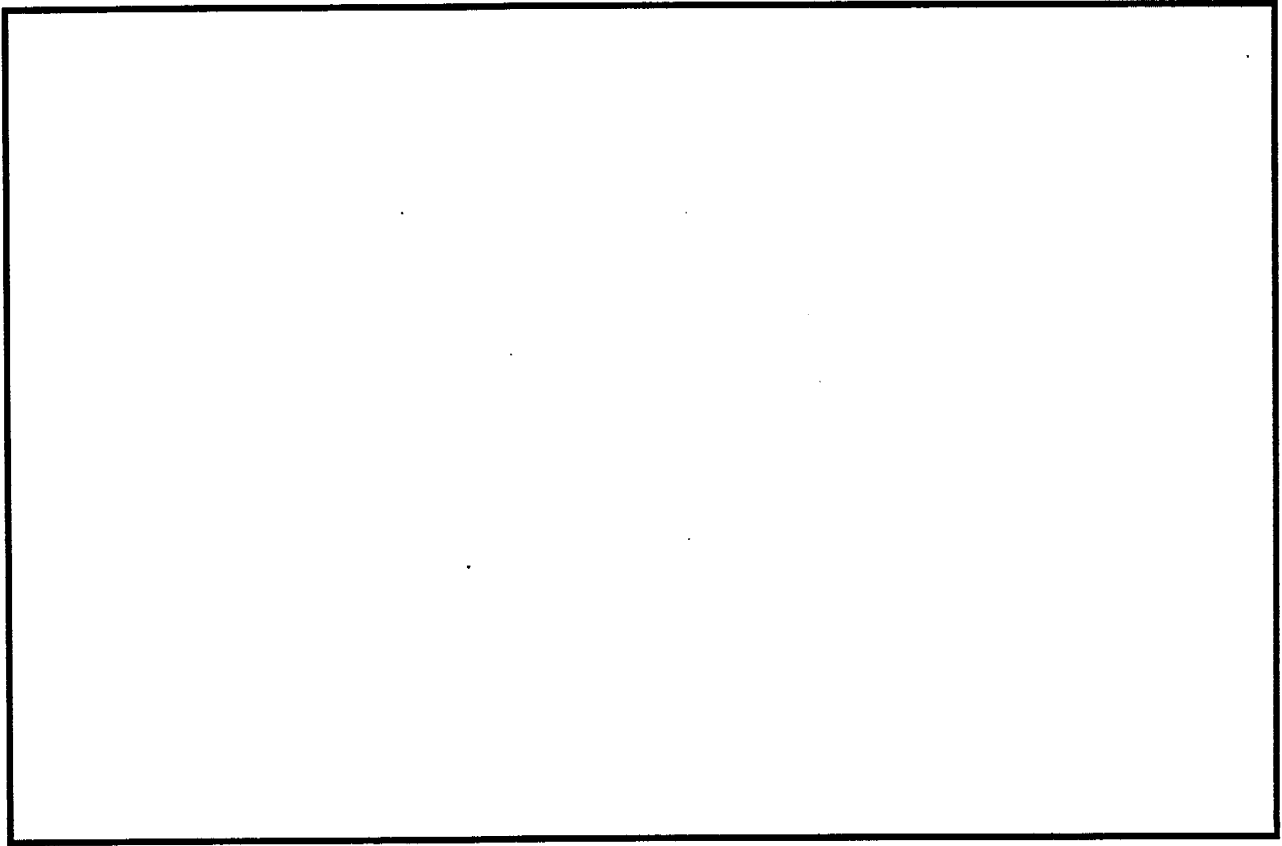
channel in Area G contained evidence of features or even minimal artifact concentrations. Phase II testing in this eastern part is shown in Plate 9. Evidence of prehistoric features was found below the plow zone in 11 of the 113 test units (10%) dug in Area G. The location of these 11 deposits of yellow-brown silty sand and charcoal indicating prehistoric features is shown in Figure 33.

Seven diagnostic prehistoric artifacts were found in Areas D, E, F, and G. All of these artifacts were projectile points dating to the Late Paleo-Indian, Archaic, and Woodland I periods. The oldest point was a jasper Palmer point recovered from Area D (Test Unit S209 W230). This artifact appears in Plate 4, C. Similar corner-notched points have been associated with the late Paleo-Indian period (ca. 7500 B.C.- 6500 B.C.) in Delaware (Custer 1989:88). This projectile point was the oldest diagnostic artifact found at the Pollack site.

The six remaining diagnostic artifacts in Areas D, E, F, and G were stemmed and corner-notched varieties of Woodland I and possibly Archaic period projectile points. Five Woodland I points were recovered. Three points were stemmed jasper points, one was rhyolite, and one was quartzite. The single Archaic point was a large, corner-notched jasper point with a concave base and distinct basal thinning

PLATE 9

Excavating Phase II Test Units in Area G of the Pollack Site (7K-C-203G)



(Plate 4,A). This point was found in Area G (Test Unit S239 W540, Figure 33). Similar basal thinning and grinding has been attributed by Coe (1964) for side-notched points from the Hardaway site in the North Carolina Piedmont.

No prehistoric ceramics or other temporally diagnostic prehistoric artifacts were found in Areas D, E, F, and G. The most common artifacts recovered were flakes, fire-cracked rock, and utilized flakes from local jaspers, cherts, and quartzes. A small number of cobble cores and a hammerstone indicating primary lithic reduction were also found. Similar collections of fire-cracked rock and cores, flakes, and tools made from local materials were found throughout the Pollack site.

The presence of low, but significant artifact densities and the limited integrity of Areas D, E, F, and G led to the determination that these areas warranted a modified Phase II testing plan. This additional Phase II testing would consist of the mechanical exposure of all features and the excavation of most, if

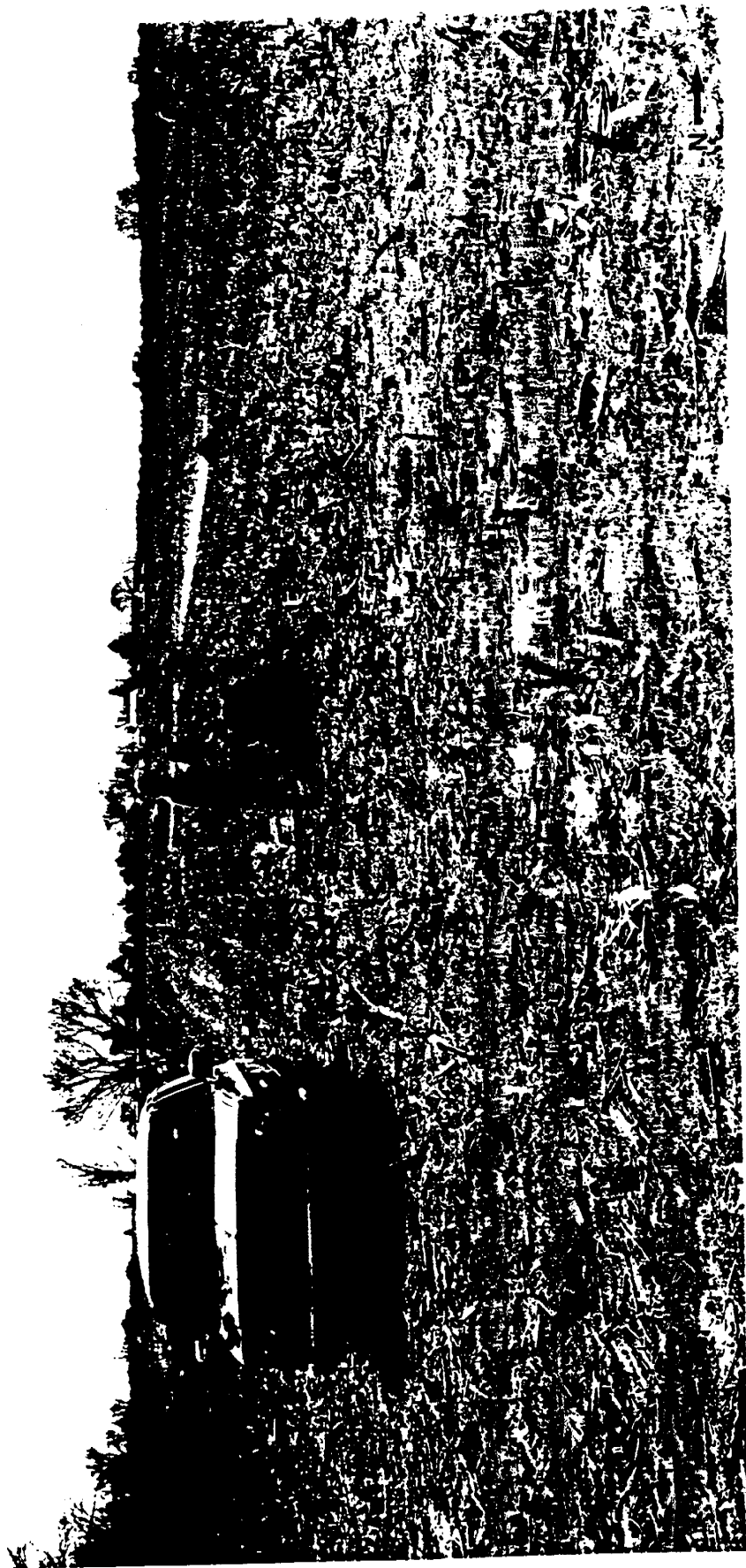
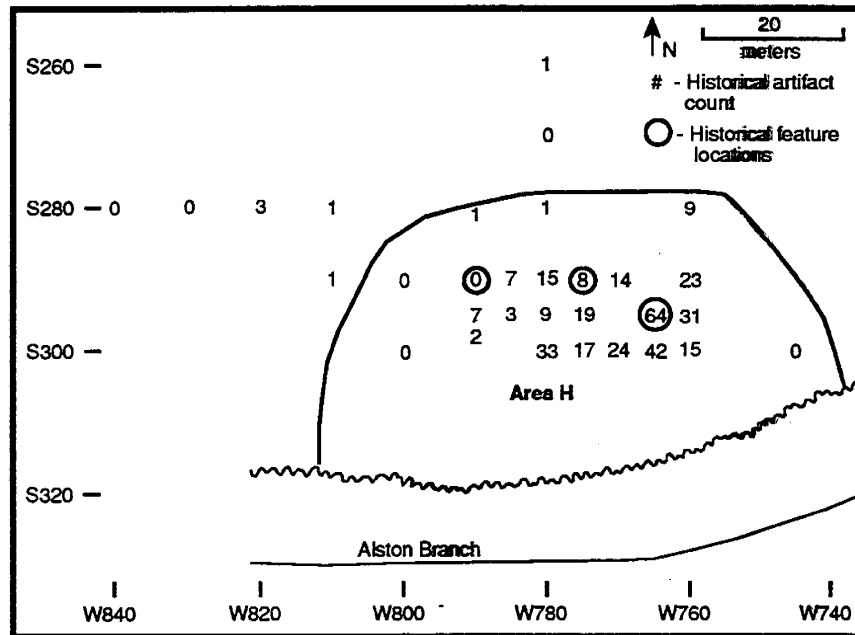


FIGURE 34

Historical Artifact Count and Feature Distribution in Area H, 7K-C-203H



not all, significant cultural features. No plow zone sampling would be undertaken because of the consistently very low artifact densities found during initial testing.

Area H (7K-C-203H)

Area H is located west of Area G along the north side of Alston Branch (Figure 25, Plate 2). Figure 34 shows the limits and total historical artifact count for

Area H. Area H is the remains of

a early eighteenth century farmstead. A total of 24 test units were excavated in Area H, 20 of which contained diagnostic early eighteenth century domestic and structural artifacts. Artifact densities ranged from one to 64 historical artifacts per test unit. These highest artifact densities (greater than 19 artifacts per test unit) in Area H constituted the highest artifact densities of any other part of the Pollack site.

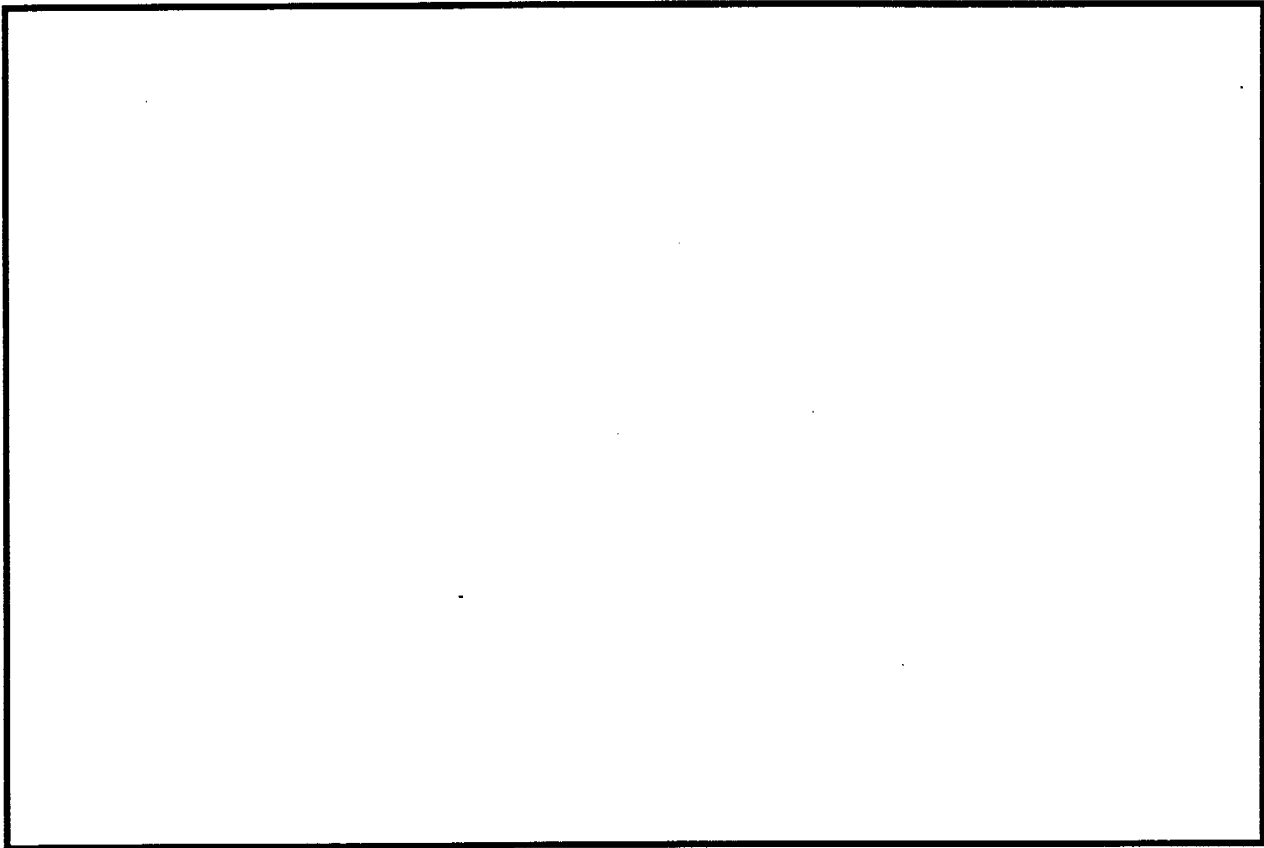
Diagnostic historical artifacts recovered from Area H included kaolin pipe stem fragments and wrought nails. Diagnostic eighteenth century ceramics included one small fragment of Rhenish blue and gray salt-glazed stoneware and several fragments of early Staffordshire earthenwares and English white salt-glazed stonewares. A representative sample of these late seventeenth to early eighteenth century artifacts found in Area H are shown in Plate 10.

Three historical features were also identified in the area of highest artifact density in Area H (Figure 34). The presence of both architectural and domestic artifacts and features indicates the presence of a structure and a high potential for additional intact historical features and artifact deposits.

One diagnostic prehistoric artifact was found in Area H. This artifact was a small chert Woodland I corner-notched projectile point found in a heavily eroded plow zone context. Similar points have been

PLATE 10

Late Seventeenth-Early Eighteenth Century Artifacts from Area H of the Pollack Site (7K-C-203H)



Top - Slip Decorated Redware Middle - Bellarmine Stoneware Bottom - Wrought Nails

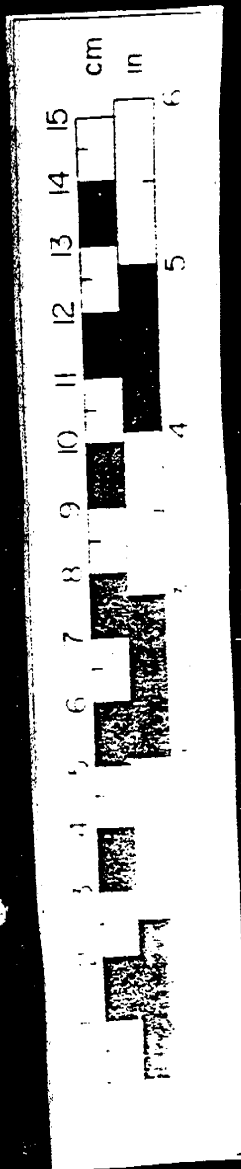
dated to the late Paleo-Indian and early Archaic periods in central Delaware (Custer 1989: 87). No other diagnostic artifacts came from Area H and only nine other prehistoric artifacts were found during Phase II testing. These nine artifacts consisted of small fire-cracked rock fragments and jasper, chert, and quartz flakes. All of these artifacts came from extremely eroded contexts along Alston Branch and no evidence of prehistoric features was located.

The presence of historical artifacts and cultural features in both plow zone and undisturbed contexts led to the determination that Area H was a significant part of the Pollack site. The large size of the area and high density of historical artifacts in Area H indicate a high potential for additional intact cultural remains. Thus Area H warrants Phase III data recovery operations if proposed borrow pit and wetland reclamation excavations are undertaken.

Top

Middle

Bottom



Conclusions and Recommendations

Additional Phase I and II testing at the Pollack site identified eight discrete areas of historical and prehistoric occupation. The limits of each of these eight areas, 7K-C-203A to 7K-C-203H, were determined on the basis of artifact density, site integrity, and the presence of intact cultural features. Additional Phase II testing was determined to be warranted for the four smallest areas (Areas D, E, F, and G) where limited integrity and low artifact and feature densities were found. Areas A, B, C, and H, however, were determined to warrant Phase III data recovery operations if proposed borrow pit excavations and wetland replacement operations are undertaken.

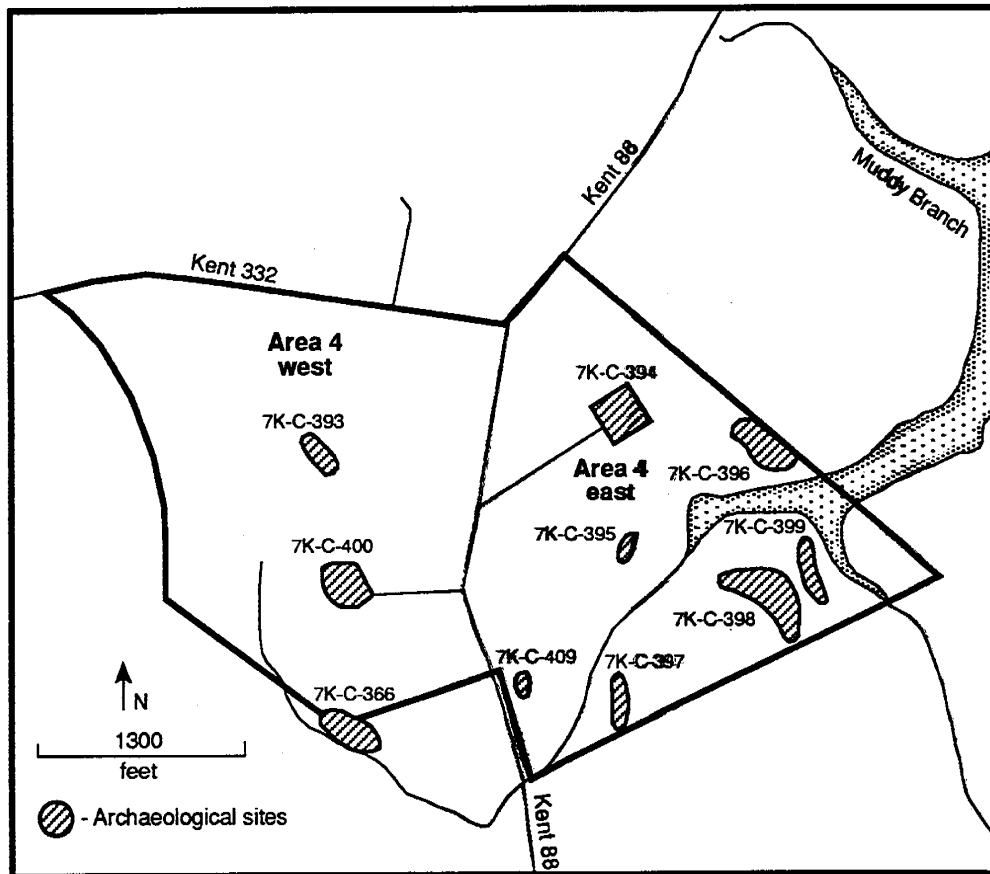
Based on the large numbers of artifacts and features recovered, site 7K-C-203 is most likely a series of prehistoric base camps. These base camps probably correspond to the seven areas of concentrated prehistoric artifacts identified by intensive Phase II testing (7K-C-203A to 7K-C-203G). The two historical components in 7K-C-203C and 7K-C-203H appear to be the remains of two discrete late seventeenth to early eighteenth century structures.

The large size of the prehistoric features found at the Pollack site suggests that they are house pits or storage pits. These features were found in discrete concentrations indicating that “household clusters,” or residential locales, were present at the site during Woodland I and Woodland II times. Artifacts dating to the Archaic period were also recovered, but no evidence of features from this time period was identified. The potential for features from this earlier period, however, is high.

The most recent Phase II excavations clearly confirm that 7K-C-203 is eligible for listing on the National Register of Historic Places under Criterion “D”. Excavations at the site show that it contains significant, well-preserved prehistoric and historical features in good stratigraphic context. Preservation of floral remains within the features is good and will allow the study of prehistoric diets. The presence of numerous house features and associated storage pits within “household clusters” allows the analysis of archaeological materials by prehistoric social units. Such analyses will clarify the nature of prehistoric social organizations during the early part of the Woodland I period, which is a time period when these social organizations were undergoing pronounced change (Custer 1989:296-297). Furthermore, because the household clusters seem to date to different time periods within the Woodland Period, it should be possible to examine changes in the organization of households over time.

FIGURE 35

Location of all Archaeological Sites in Area 4



AREA 4, KENT 88

Area 4 is located approximately one half mile east of Dover along present Kent 88 (Figures 1 and 35). The portion of Area 4 east of Kent 88 was labeled Area 4E to distinguish it from the portion west of Kent 88, Area 4W. A total of nine historical and prehistoric archaeological sites were identified by Phase I testing in Area 4. These nine sites and a previously identified prehistoric site,

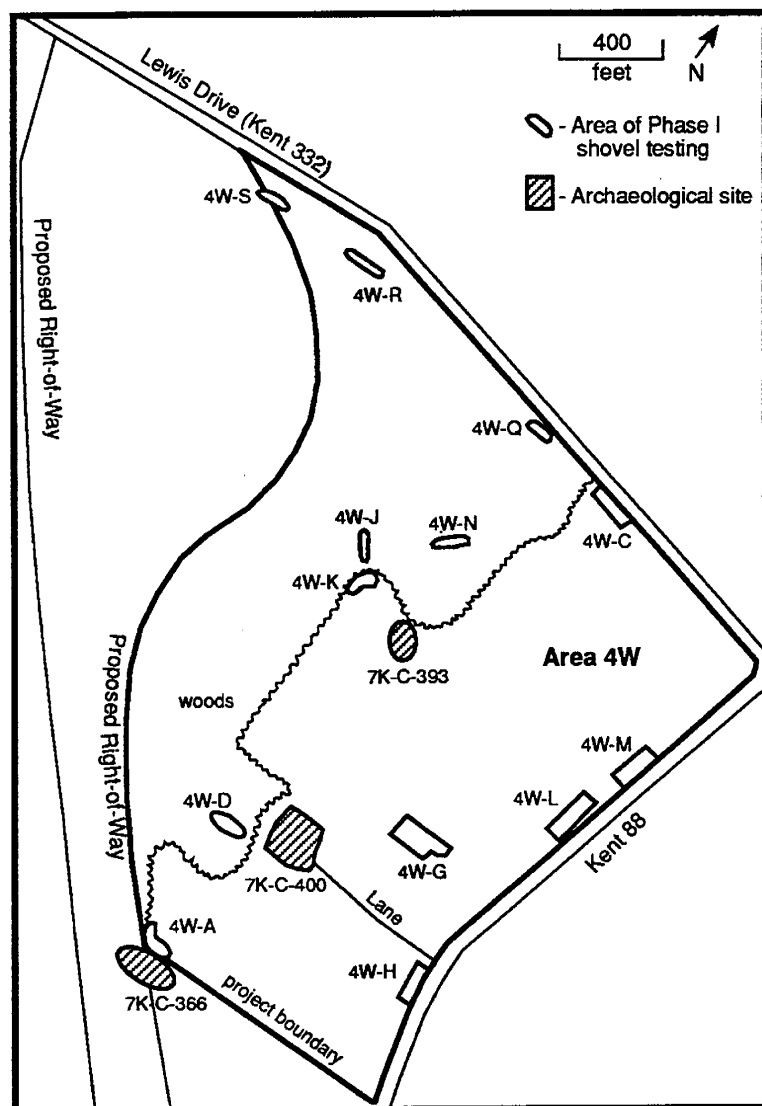
7K-C-366, are shown in Figure 35. Two of the sites, 7K-C-393 and 7K-C-400, are located in Area 4W. The remaining seven sites, 7K-C-394 to 7K-C-399, and 7K-C-409, are located in Area 4E. A discussion of the sites in each portion of the project area follows.

Area 4W is bounded on the east by Kent 88 and on the north by Kent 332 (Lewis Drive). Most of the area is a fallow field associated with the historical farmhouse on the parcel, 7K-C-400 (K-2071). Ground surface visibility was nil and no surface collection was possible. The easternmost part of Area 4W is a low, poorly-drained woodlot dominated by heavy Othello clays. Intermittent drainages into Muddy Branch hold water most of the year. Elevations range from less than 10' to approximately 24' above sea level. The cultivated portions of Area 4W are generally higher and better-drained silty and sandy loams.

The location of all Phase I tests in Area 4W is shown in Figure 36. A total of 16 areas were tested by shovel test pits oriented to independent 20' and 40' grids. These shovel tests were placed in areas of

FIGURE 36

Location of all Areas of Phase I Shovel Testing and all Archaeological Sites in Area 4W



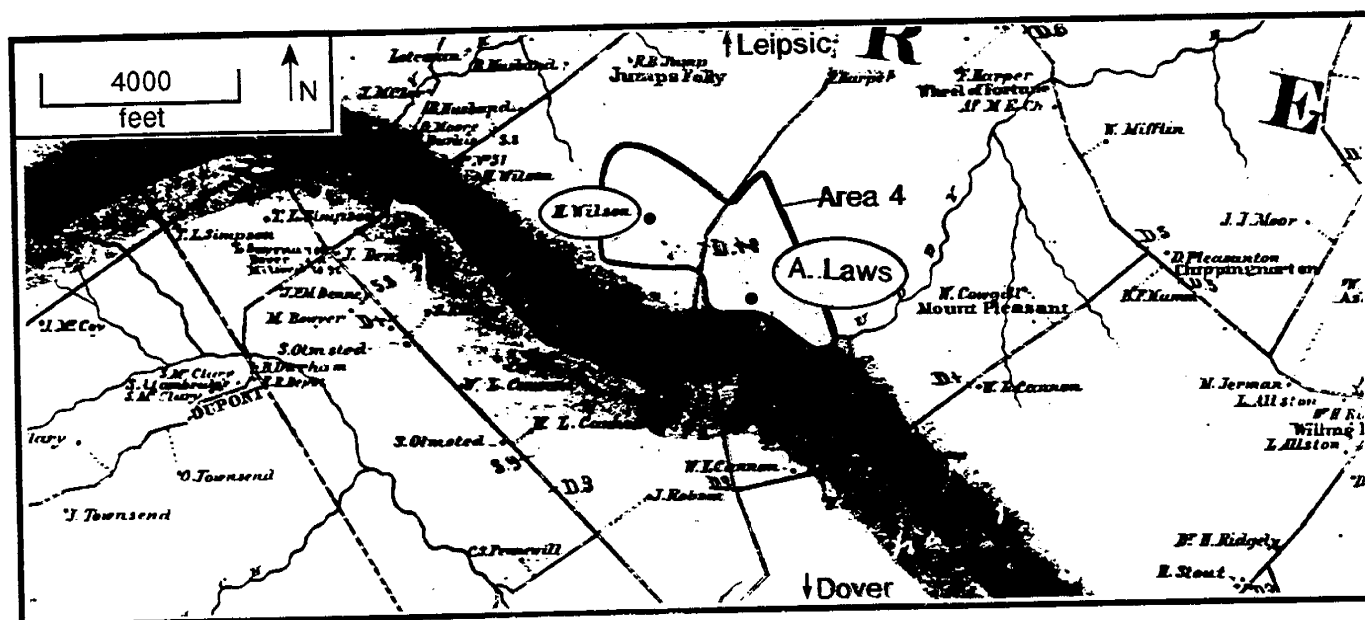
high, medium, and low prehistoric and historical site potential. The eastern-most edge of one known prehistoric site, 7K-C-366, was tested and two new archaeological sites, 7K-C-393 and 7K-C-400, were located.

7K-C-400 is the remains of a mid-to late nineteenth century agricultural complex (K-2071). The site is located 600' west of Kent 88 at the end of an extant driveway (Figure 36). The dwelling house, barn and outbuildings associated with 7K-C-400 were recently destroyed by fire and only one structure, a three-sided machinery shed is still standing. A structure appears on the site as early as 1859 when Byles' atlas of that year shows a structure associated with "H. Wilson" (Figure 37). Henry Wilson was a noted area landowner. The site also appears on Beers' 1868 atlas and was associated with "A. J. Wilson,"

probably Henry Wilson's son Alexander (Figure 38).

The H. Wilson Farm was occupied until the 1980s and appears on various twentieth century maps, including the 1906 U.S.G.S. topographic map and Bausman's 1939 map of Kent County. The last occupant of the farm, Mrs. Ruth Davis, was born in the house around the turn of the twentieth century. The location of the dwelling is marked by the remains of a partial concrete block foundation, a small chimney and attached television antenna, and charred roof rafters.

Detail of Byles' 1859 Atlas Showing Area 4 and the "H. Wilson" and "A. Laws" Farms



Detail of Beers' 1868 Atlas Showing Area 4 and the "A.J. Wilson" and "A. Laws" Farms

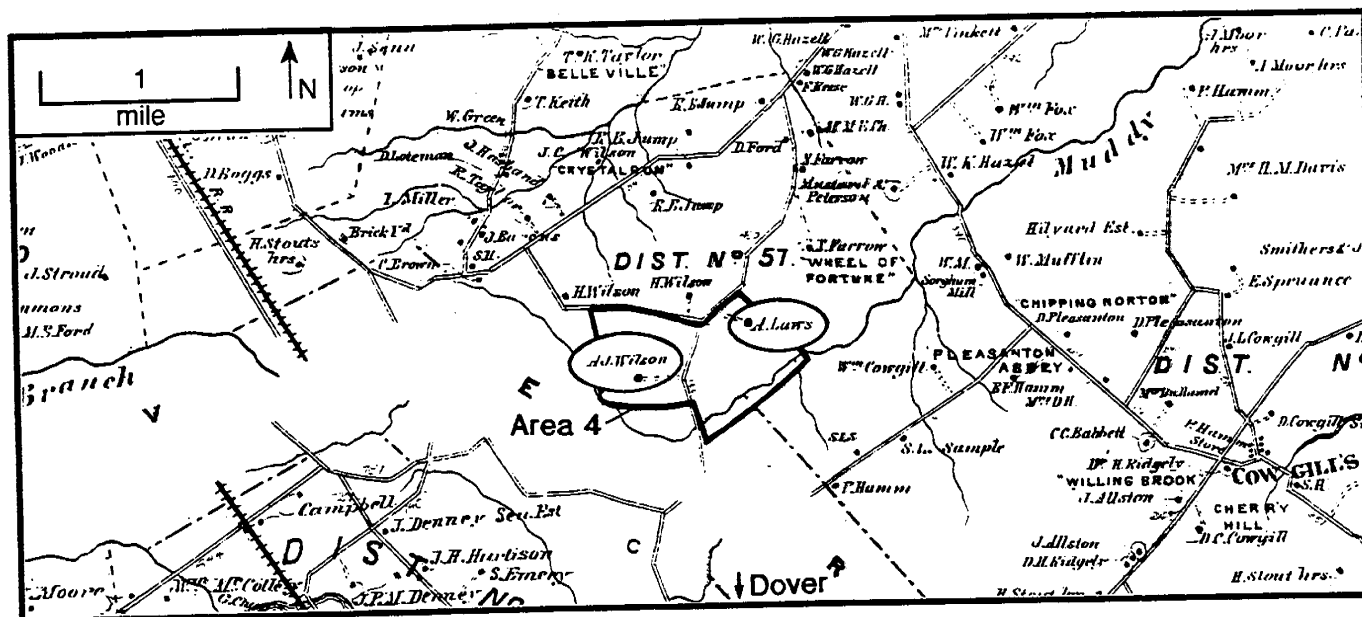


FIGURE 39

Location of all Phase I Tests at the H. Wilson Farm Site (7K-C-400)

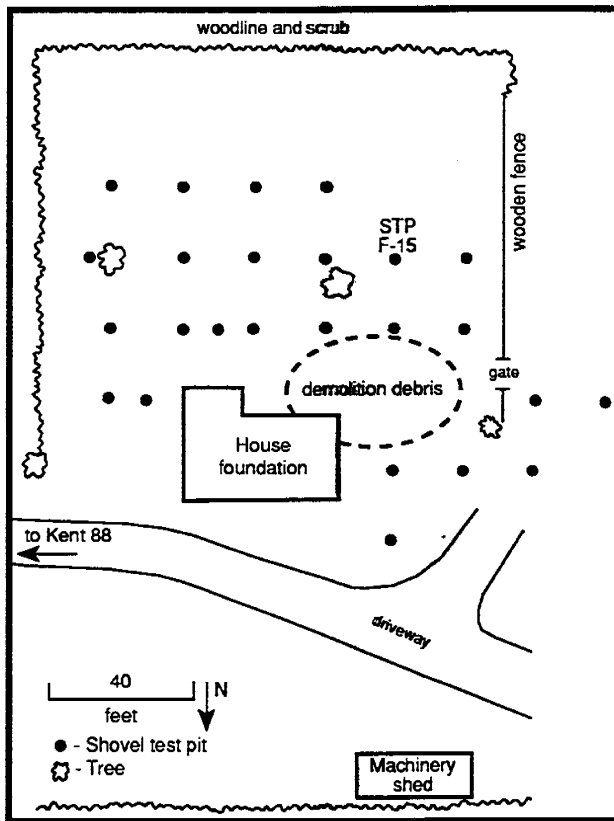
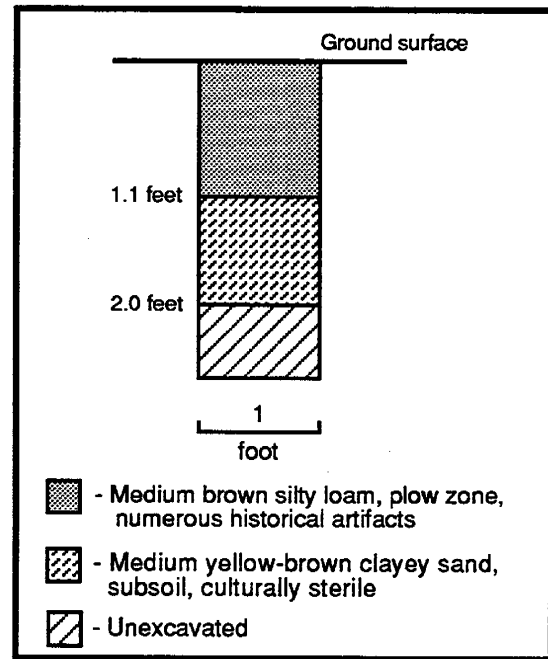


FIGURE 40

Typical Soil Profile of the H. Wilson Farm Site (7K-C-400), STP F-15



Phase I testing consisted of a pedestrian survey of the remains of the dwelling and associated outbuildings and the excavation of 25 shovel test pits on a 20' grid around the house foundation. The location of these shovel tests with respect to the house foundation is shown in Figure 39. Historical artifacts were recovered from all of the tests. Diagnostic nineteenth and twentieth century redware, whiteware, cut and wire nails, and clear and aqua molded bottle glass fragments were recovered. A summary of all of the artifacts found at 7K-C-400 and the other sites in Area 4 is given in Appendix I.

No historical artifacts were recovered from below the 1.0' plow zone encountered in every shovel test. Artifact density ranged from 5 to 72 artifacts per shovel test. A typical soil profile from 7K-C-400 showing the medium brown silty loam plow zone and underlying yellow-brown clayey sand subsoil appears in Figure 40. Although no artifacts or cultural features were identified below the plow zone,

FIGURE 41
Location of all Phase I
Tests at 7K-C-393

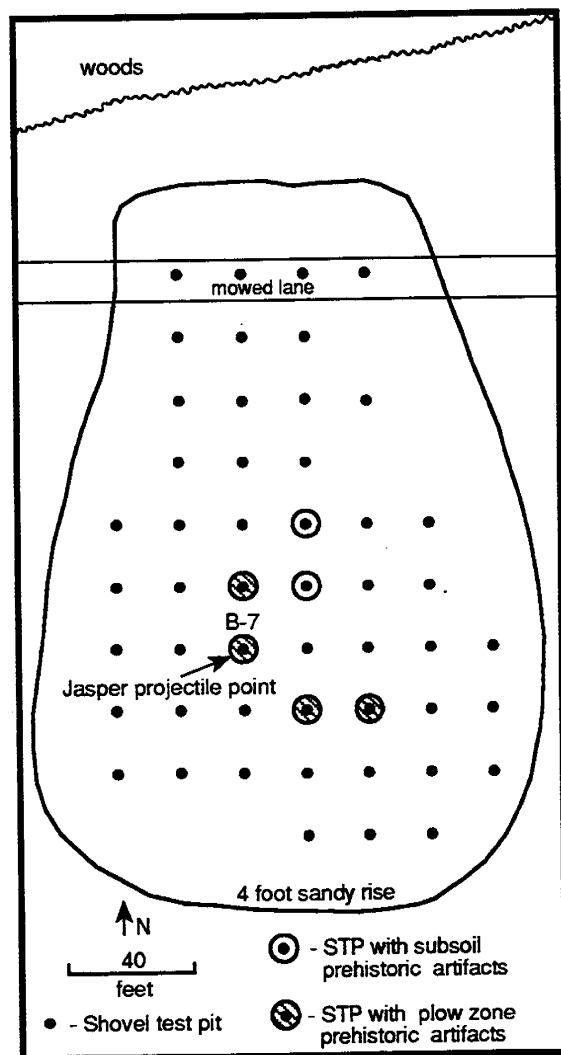
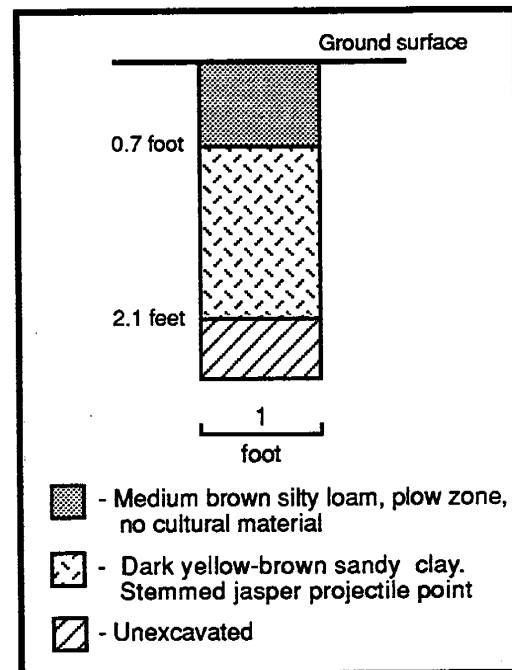


FIGURE 42
Soil Profile of STP B-7,
(7K-C-393)

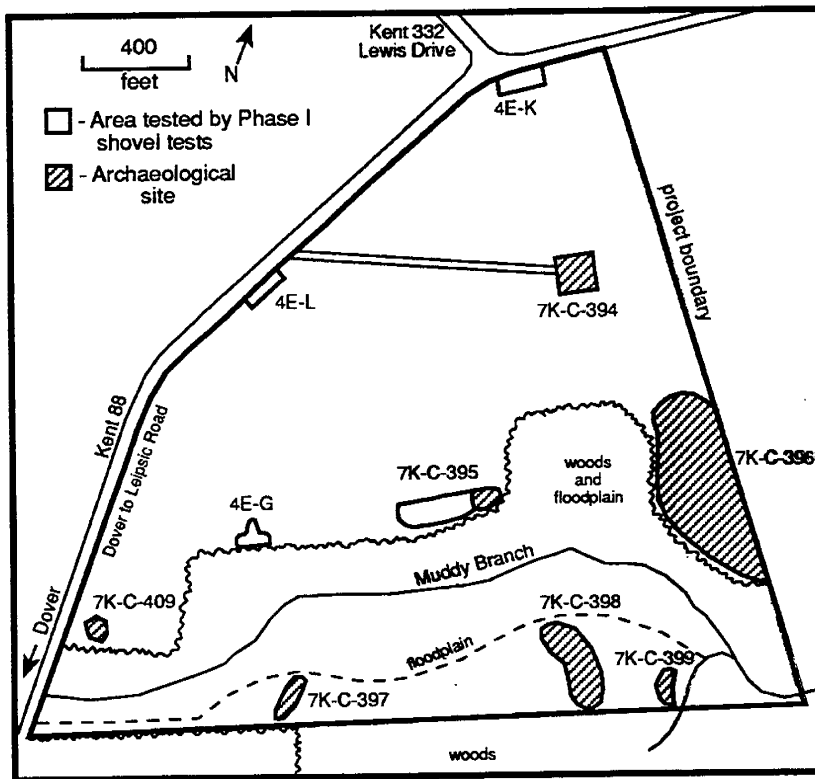


the potential for such deposits is high. Although this site will not be impacted by proposed borrow pit and wetland replacement, a Phase II survey of 7K-C-400 is warranted if this site is impacted by future construction.

Site 7K-C-393 is a small prehistoric site located in a plowed field approximately 700' north of the H. Wilson house (Figure 36). The site is located on a small 4' sandy rise perpendicular to a treeline 75' to the north. West of this rise is a shallow ephemeral drainage. A total of 50 shovel tests were excavated on a 20' grid over the entire rise (Figure 41). Prehistoric artifacts were recovered from six of these tests along the top of the rise. A total of 11 prehistoric artifacts including seven chert, jasper, quartz, and chalcedony flakes, a jasper late stage biface reject, and three fire-cracked rock fragments were recovered. Seven of these 11 artifacts were recovered from below the plow zone in intact subsoil contexts. Subsoil artifacts included the jasper stemmed point and a possible argillite flake. A profile of STP B-7, the test containing the jasper projectile point, is shown

FIGURE 43

Location of all Areas of Phase I Shovel Testing and all Archaeological Sites in Area 4E



in Figure 42. The subsoil in STP B-7 was a dark yellow-brown sandy clay that extended from 0.7' to at least 2.1' below ground surface where excavation was terminated. No cultural features were identified.

Although the rise containing 7K-C-393 is small, approximately 120' by 200', prehistoric artifacts were found in intact subsoil. No cultural features were identified, but the high percentage of artifacts from intact subsoil indicates a high potential for intact cultural features and

additional undisturbed artifact deposits.

Although 7K-C-393 will not be impacted by present proposed borrow pit and wetland replacement, this site is potentially National Register eligible. A Phase II survey is thus warranted if the site is impacted by future borrow pit and wetland construction.

Thirteen additional areas were tested by Phase I shovel tests in Area 4W (Figure 36). These loci; 4W-A, C, D, G, H, J, K, L, M, N, Q, R, and S, were tested by a series of shovel tests excavated at 20' intervals in the area of highest site potential. The location of all these tests is shown in Figure 36.

Area 4E is bounded on the west by Kent 88 and includes land on both sides of Muddy Branch. Ten areas tested in Area 4E yielded a total of seven archaeological sites by Phase I testing. The location of all areas of Phase I testing in Area 4E is shown in Figure 43. Four sites, 7K-C-396 through 7K-C-399, were determined to be potentially National Register eligible. Although none of these sites will be impacted by proposed borrow pit and wetland replacement, Phase II testing would be warranted if these

sites were to be impacted by future construction. Three additional areas in Area 4E were shovel tested, but no sites were located.

South of Muddy Branch, the project area is a partially-unplowed woodlot. The unplowed portions are located along the south bank of Muddy Branch. The north bank of Muddy Branch is also wooded, but most of the project area is a no-till soybean field. Elevations vary between nearly sea level along Muddy Branch to 25' above sea level. Area 4E is located immediately north of the northern project limit of the proposed realignment of Kent 88 project. The Kent 88 realignment project area was Phase I and II surveyed in 1989 and 1990 by archaeologists from the University of Delaware Center for Archaeological Research (Grettlér et al. 1991b).

The most significant site in Area 4E was 7K-C-398, a multi-component historical and prehistoric site. The site is located on a slight 4'-6' sandy rise along the south bank of Muddy Branch approximately 1800' feet east of Kent 88 (Figure 43). The historical component is the remains of a mid-eighteenth century farm probably similar to the Loockerman's Range component of Dover Downs Hill B (7K-C-365B). Diagnostic eighteenth century artifacts including ceramics and English gunflints were located in a plowed woodlot south of Muddy Branch. Artifacts were recovered from subsoil contexts and an intact historical feature was located. Also located in this area is an early Woodland I site. This prehistoric site extends beyond the area of historical artifacts. Diagnostic prehistoric artifacts included Minguannan, Mockley, and steatite tempered ceramic fragments. Some of these prehistoric artifacts were recovered from intact subsoil contexts and the potential for additional intact cultural features is high.

Site 7K-C-398 is located in a second and third growth forest. The entire site has been plowed and is thickly overgrown with small saplings and trees up to one foot in diameter. The site was located by shovel test pits excavated along the highest portion of the rise south of Muddy Run. A total of 90 shovel tests were excavated at 20' and 40' intervals over the entire small rise (Figure 44).

Cultural artifacts were recovered in nearly every shovel test at 7K-C-398. Two distinct cultural components were discovered: an eighteenth century occupation and an earlier prehistoric component, possibly dating to the Woodland I Period (3000 B.C. - A.D. 1000). These components overlap somewhat, but the areas of most concentrated historical and prehistoric artifacts are distinct.

The primary locus of prehistoric activity as evidenced by artifact density and the presence of artifacts in the subsoil is along the northern edge of the bluff nearest to Muddy Branch (Figure 44). The

FIGURE 44

Location of all Phase I Tests and Total Prehistoric Artifact Distribution at 7K-C-398

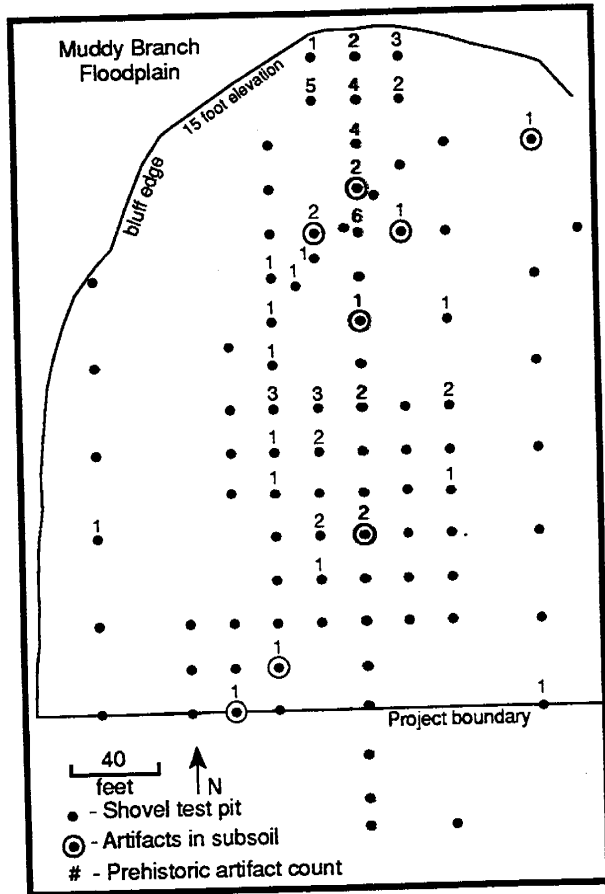
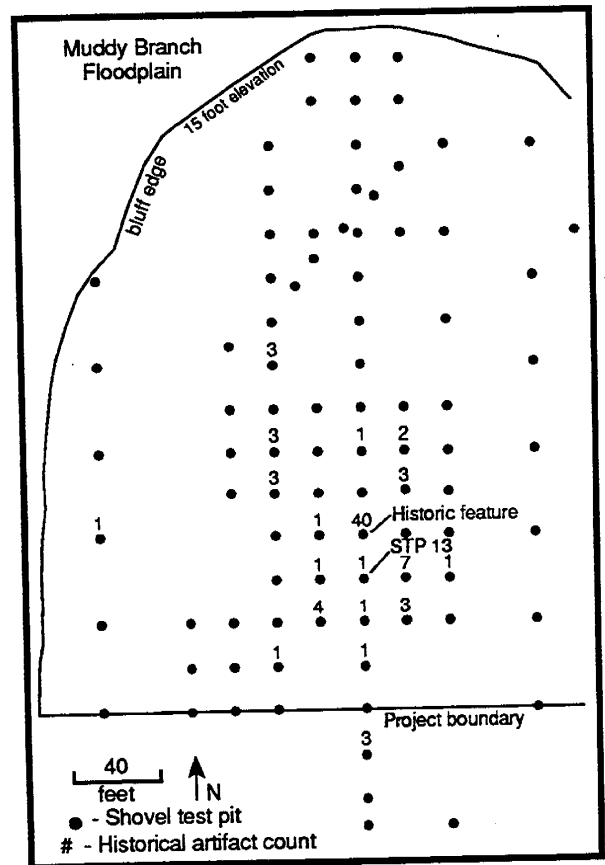


FIGURE 45

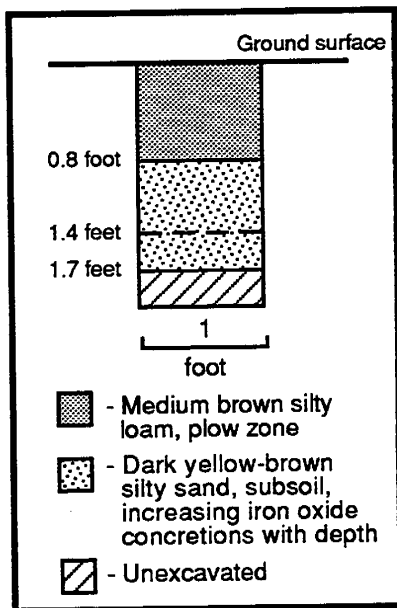
Location of all Phase I Tests and Total Historical Artifact Distribution at 7K-C-398



primary locus of historical activity is along the southern edge of the bluff approximately 100 feet south of the area of concentrated prehistoric artifacts (Figures 44 and 45). Some overlap of the two occupations was seen and it is possible that the historical occupation has disturbed part of the earlier prehistoric site.

Prehistoric artifacts were located in 34 of the 90 shovel tests (38%). A total of 64 prehistoric artifacts were recovered. Artifacts were recovered in undisturbed subsoil deposits in eight of these tests (Figure 44). Artifact densities ranged from one to six artifacts per shovel test. No diagnostic lithic artifacts were found, but 39 flakes and five flake tools were recovered. Eleven prehistoric ceramic fragments were also recovered. All of these artifacts were found in the plow zone and were heavily damaged. The ceramics exhibited a range of tempers indicating Woodland I and possibly Woodland II occupations. Diagnostic Woodland I ceramics consisted of six grit tempered sherds (possibly Hell Island

FIGURE 46
Typical Soil Profile
of 7K-C-398,
(STP B-13)



ware), one steatite tempered sherd (possibly Marcey Creek ware), and two shell-tempered sherds (possibly Mockley ware). Two fragments of grit and shell tempered ceramics, possibly Killens ware, were also recovered. According to Custer (1989:308-309), Killens ware is commonly associated with the Woodland II Period (A.D. 975 - A.D. 1600). The small size of each of these ceramic sherds precluded further identification. A summary of all prehistoric and historical artifacts recovered from this site is given in Appendix I.

No prehistoric features were identified. Although most of the prehistoric artifacts recovered came from the plow zone, the potential of further intact artifact deposits and intact cultural features is high. A typical stratigraphic profile of 7K-C-398 is

shown in Figure 46. The plow zone identified over the entire site extended to approximately 0.8 foot below ground surface. Underlying this medium brown silty loam plow zone were dark yellow-brown silty sands extending to at least 1.4 feet below ground surface. These yellow-brown soils became increasingly mottled with bright red-brown iron oxide concretions with depth.

The presence of diagnostic prehistoric and historical artifacts in intact subsoil deposits at 7K-C-398 indicates that this site is potentially eligible for listing on the National Register of Historic Places. Although this site will not be impacted by proposed borrow pit and wetland replacement and no Phase II survey was undertaken, a Phase II survey of this site would be warranted if this site was to be impacted by future construction.

Two other prehistoric sites were located south of Muddy Branch in the same woodlot as 7K-C-398. These two sites, 7K-C-397 and 7K-C-399, are located on the southern edge of the Muddy Branch flood plain along slight sandy rises approximately 20 feet above sea level (Figure 43). Except for a small unplowed portion of 7K-C-399, both sites have been historically plowed.

Site 7K-C-397 is located approximately 800 feet east of Kent 88 on the westernmost edge of a small 4 foot to 6 foot sandy rise bordering the floodplain of Muddy Branch to the north. A total of 61

FIGURE 47
Location of all Phase I Tests
and Total Prehistoric Artifact
Distribution, 7K-C-397

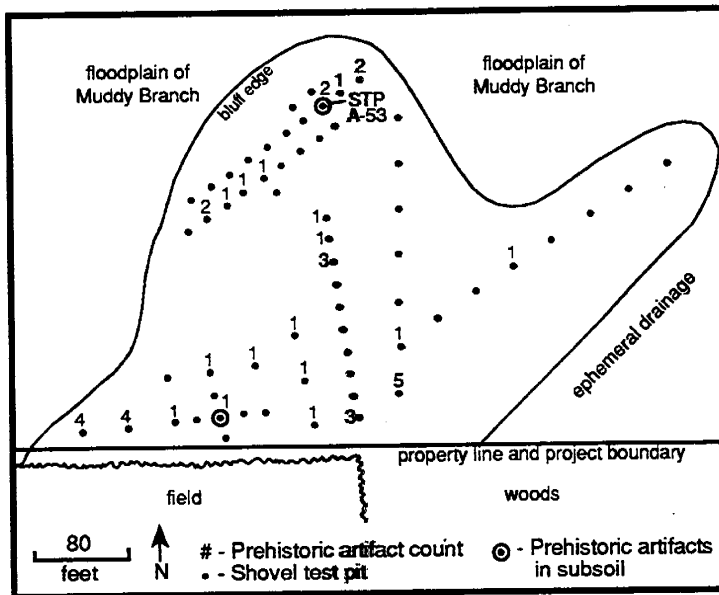
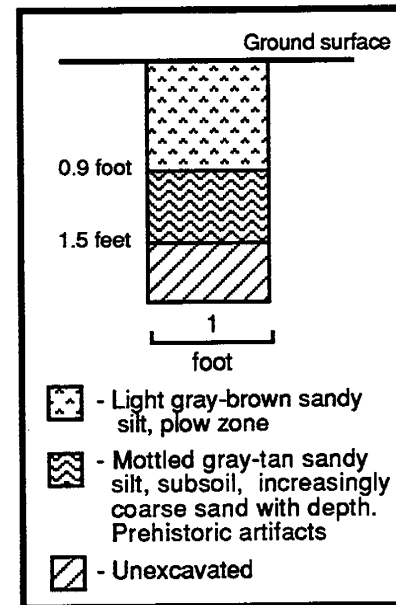


FIGURE 48
Typical Soil Profile of
7K-C-397, (STP A-53)

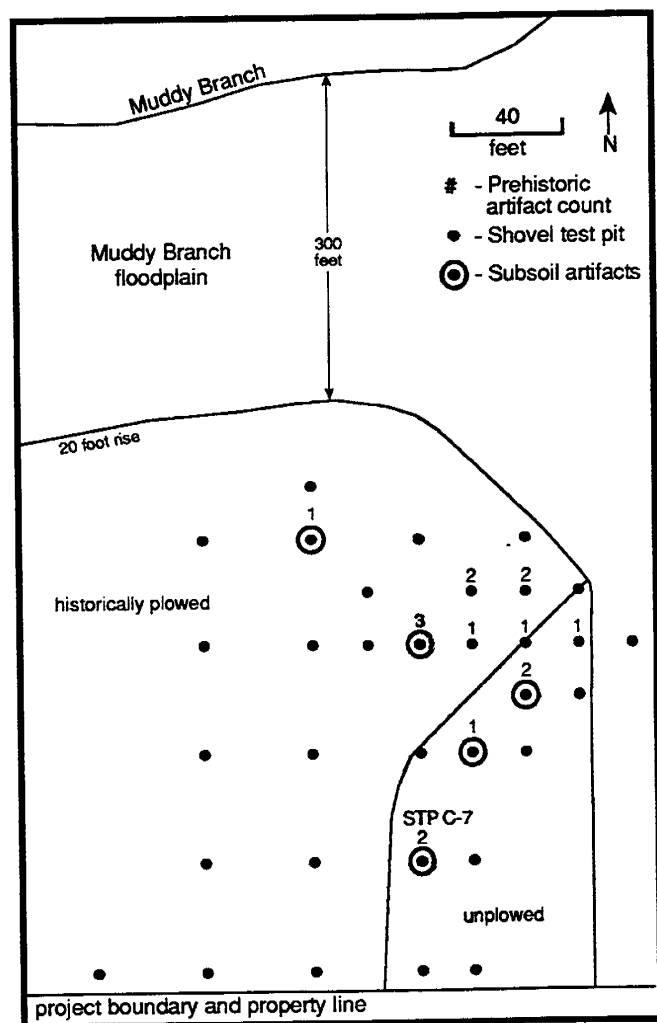


shovel tests were excavated at 20 foot intervals along transects oriented to the highest parts of the rise (Figure 47). Prehistoric artifacts were located in 23 of these tests. No diagnostic artifacts were recovered, but jasper and quartz flakes were recovered from intact subsoil deposits below the plow zone in two shovel tests.

Although prehistoric artifact densities were low, artifacts in the subsoil and the setting of the site indicate a high potential for intact cultural features and further subsoil artifact deposits. The stratigraphy of site 7K-C-397 consisted of a light gray-brown sandy silt plow zone extending to 0.9 feet below ground surface (Figure 48). Below this plow zone was a mottled gray-tan sandy silt subsoil. This subsoil became increasingly coarse and sandy with depth and contained prehistoric artifacts in two shovel tests. A very low density scatter of mid- to late nineteenth and twentieth century artifacts, primarily small coal and clear bottle glass fragments, were also located by Phase I testing. These artifacts are the result of simple plow scatter and do not indicate the presence of a historical site.

The remaining archaeological site located south of Muddy Branch in Area 4E is 7K-C-399. Site 7K-C-399 is located east of both 7K-C-397 and 7K-C-398 near the confluence of Muddy Branch and

Location of all Phase I Tests and Total Prehistoric Artifact Distribution at 7K-C-399



an unnamed tributary (Figure 43). 7K-C-399 is located along the easternmost portion of the same 20 foot elevation contour as 7K-C-398, the multicomponent site approximately 300 feet to the west. Figure 49 shows the location of Phase I testing and total prehistoric artifact counts for 7K-C-399.

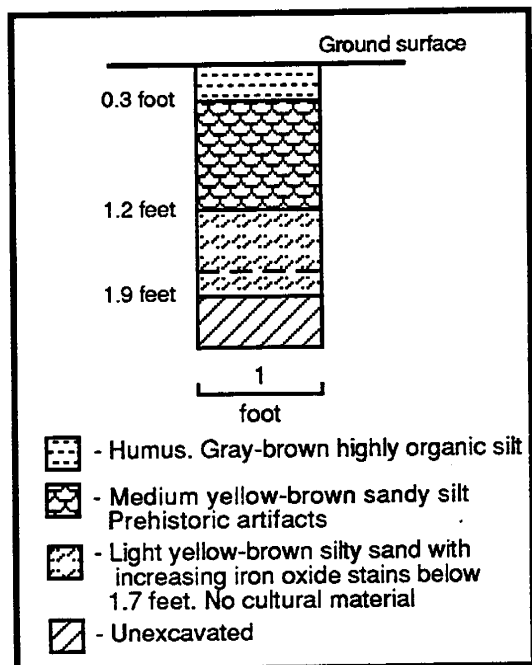
Phase I testing consisted of the excavation of 33 shovel test pits at 20 foot and 40 foot intervals. The shovel test pit grid was oriented to the highest portion of the slight sandy rise comprising the site and the floodplains of Muddy Branch and its unnamed tributary to the north and east. A total of 16 prehistoric artifacts, consisting of 14 jasper, quartz, chert and chalcedony flakes and two fire-cracked rocks were recovered from ten shovel tests. A 180' by 200' area was tested and artifact concentrations were greatest along the eastern edge of the site along the edge of the floodplain of the unnamed

tributary at its confluence with Muddy Branch.

No diagnostic prehistoric artifacts or cultural features were identified at 7K-C-399. Prehistoric flakes and fire-cracked rocks, however, were recovered from intact subsoil and historically unplowed contexts. The eastern portion of the site, where artifact densities were the greatest at two artifacts per shovel test, was determined to be historically unplowed. The extent of this unplowed area is shown in Figure 49. One quarter of the shovel tests excavated in this area located prehistoric artifacts in undisturbed contexts.

The stratigraphy of the unplowed portion of 7K-C-399 is shown in Figure 50. Prehistoric artifacts were recovered from medium yellow-brown sandy silts that extended from below the humus at 0.3 feet

FIGURE 50
Typical Soil Profile of the
Unplowed Portion of
7K-C-399, (STP C-7)



to 1.2 feet below ground surface. In the plowed, westernmost portion of the site, prehistoric artifacts were recovered from similar sandy silts down to 1.4 feet below ground surface. Below these artifact bearing silts were culturally sterile light yellow-brown silty sands found to extend as deep as 2.3 feet below ground surface.

Although no cultural features or diagnostic prehistoric artifacts were recovered, prehistoric artifacts were found in intact subsoil at 7K-C-397 and 7K-C-399. The depth of these intact soils indicates a high potential for further intact artifact-deposits and undisturbed cultural features. No evidence of historical sites was located and small fragments of coal and late nineteenth century bottle glass and whitewares were the most common historical

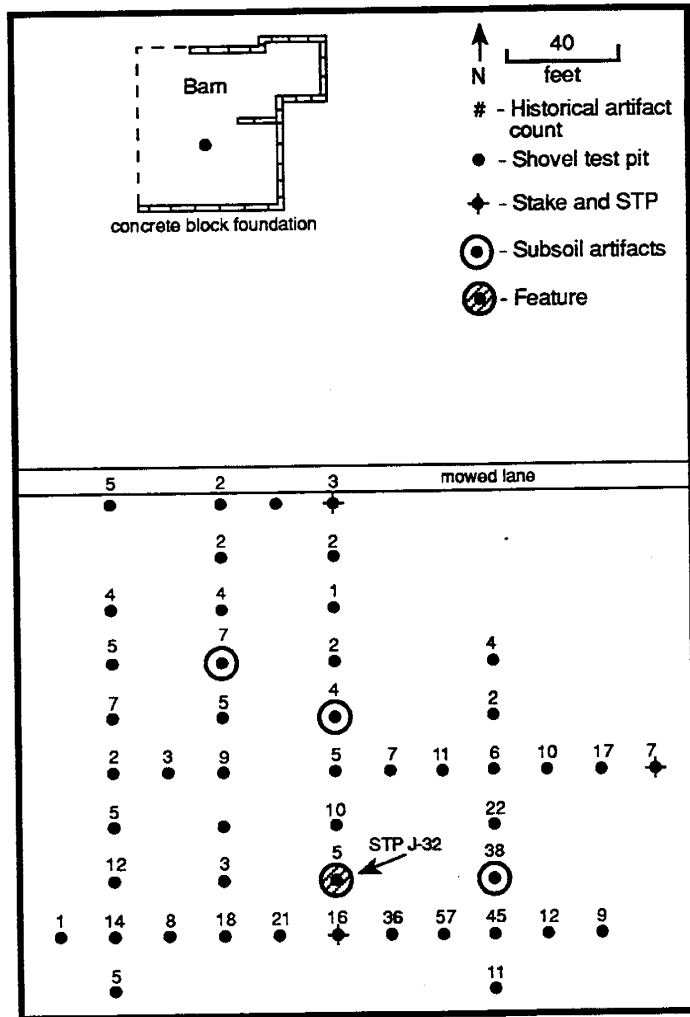
artifacts recovered. Such plow scatter was seen in every loci tested in Area 4. Although both sites are not to be impacted by current construction plans, Phase II testing would be warranted at both sites were they to be impacted by future borrow pit or wetland replacement.

Four archaeological sites were identified north of Muddy Run in Area 4E (7K-C-394, 7K-C-395, 7K-C-396, and 7K-C-409; Figures 35 and 43). Three of these sites, 7K-C-395, 7K-C-396, and 7K-C-409, are prehistoric sites located in similar settings as the sites located south of Muddy Run. The remaining site, the Alexander Laws Farm site (7K-C-394) is the remains of a mid-nineteenth century to mid-twentieth century farm similar to 7K-C-400, the farm located west of Kent 88 in Area 4W. All of these sites are located in the same agricultural field and each site has been completely plowed.

The single historical archaeological site, 7K-C-394, appears on both Byles' (1859) and Beers' (1868) historical atlases (Figures 37 and 38). The site appears on both maps as a structure associated with Alexander Laws, a known area landowner. The Alexander Laws Farm site was occupied into the 1970s and the remains of a concrete block barn foundation and associated silo were visible until February

FIGURE 51

Location of all Phase I Tests and Total Historical Artifact Distribution at the Alexander Laws Farm Site (7K-C-394)



1991 when they were bulldozed by persons unknown. These foundations, however, were visible at the time of the Phase I survey in November 1990 and were used to orient the grid of shovel test pits excavated at the site (Figure 51).

A total of 48 shovel tests were excavated at 20 foot and 40 foot intervals south of the concrete block barn foundation. These tests were located in the area of the farm house shown on numerous twentieth century maps including Bausman's 1939 map of Kent County and the most recent (revised 1981) U.S.G.S. topographic map.

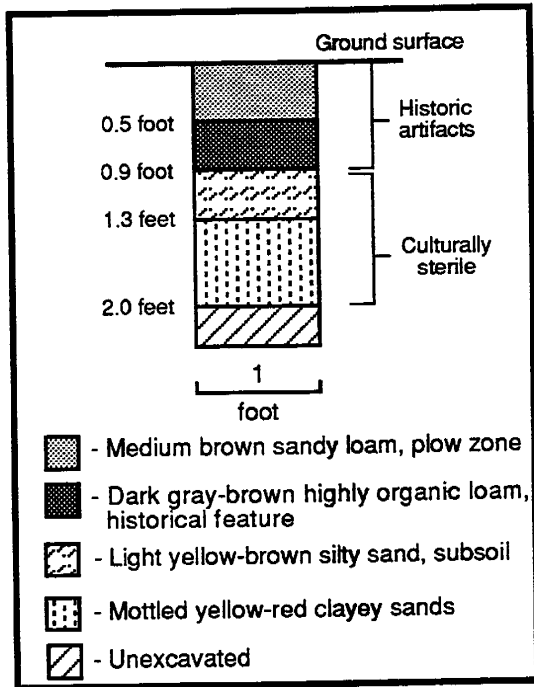
The density of total historical artifacts clearly identifies the location of the farmhouse at the Alexander Laws site (Figure 51). Artifact densities ranged from one to 57 artifacts per shovel test pit. High

artifact densities, between 15 and 57 artifacts per shovel test, were identified approximately 200 feet south of the barn in the area indicated by historical maps as the location of the dwelling. Other evidence of a structure can be seen in the presence of artifacts below the plow zone and the single cultural feature located at the site in STP J-32 (Figure 51). This feature consisted of a highly organic and artifact-laden silty loam between the plow zone and sterile light yellow-brown silty sand subsoil (Figure 52). No evidence of a foundation of the domestic structure was located.

The artifacts recovered from the feature fill of STP J-32 included two chimney glass fragments, three brick fragments, two wire nails, and three clear window glass fragments. Other such typical

FIGURE 52

Soil Profile of STP J-32 Showing Historical Feature at the Alexander Laws Farm Site (7K-C-394)



mid- to late nineteenth century structural and domestic artifacts were recovered from the 1.0 foot thick plow zone of 7K-C-394 (Figure 52). Diagnostic nineteenth and early twentieth century artifacts included whiteware, white granite ware, yellowware, and American porcelain ceramic fragments; fully automated machine-made amber, aqua, and clear bottles; wire nails, and coal. Numerous white milk glass canning jar seals and diagnostic nineteenth and early twentieth century Ball and Mason jar fragments were also found, particularly in the area of the domestic structure indicated by historical maps and Phase I shovel testing. Although only one intact cultural feature was identified and only three of the 48 shovel tests (1%) contained artifacts in the subsoil, the potential for further intact features and artifact deposits

is high. Thus Phase II testing is warranted if this site is impacted by future construction.

The three remaining sites located in Area 4E; 7K-C-395, 7K-C-396, and 7K-C-409, are prehistoric sites located along slight to moderate sandy rises north of Muddy Branch (Figures 35 and 43). All three sites are located in the same agricultural field as the Alexander Laws Farm site and all have been completely plowed.

The largest and most significant of these prehistoric sites is 7K-C-396 (Figures 35 and 43). Site 7K-C-396 consists of a roughly continuous low density scatter of prehistoric artifacts along a 400 foot by 160 foot sandy rise north of Muddy Branch (Figure 53). This sandy rise of Sassafras soils varies slightly between 4 feet and 6 feet in height and is located approximately 600 feet east of the Alexander Laws Farm site.

Phase I testing at 7K-C-396 consisted of the excavation of 109 shovel tests at 20 foot and 40 foot intervals over the entire 400 foot by 160 foot rise (Figure 53). Prehistoric artifacts were recovered in

FIGURE 53

Location of all Phase I Tests and Total Prehistoric Artifact Distribution at 7K-C-396

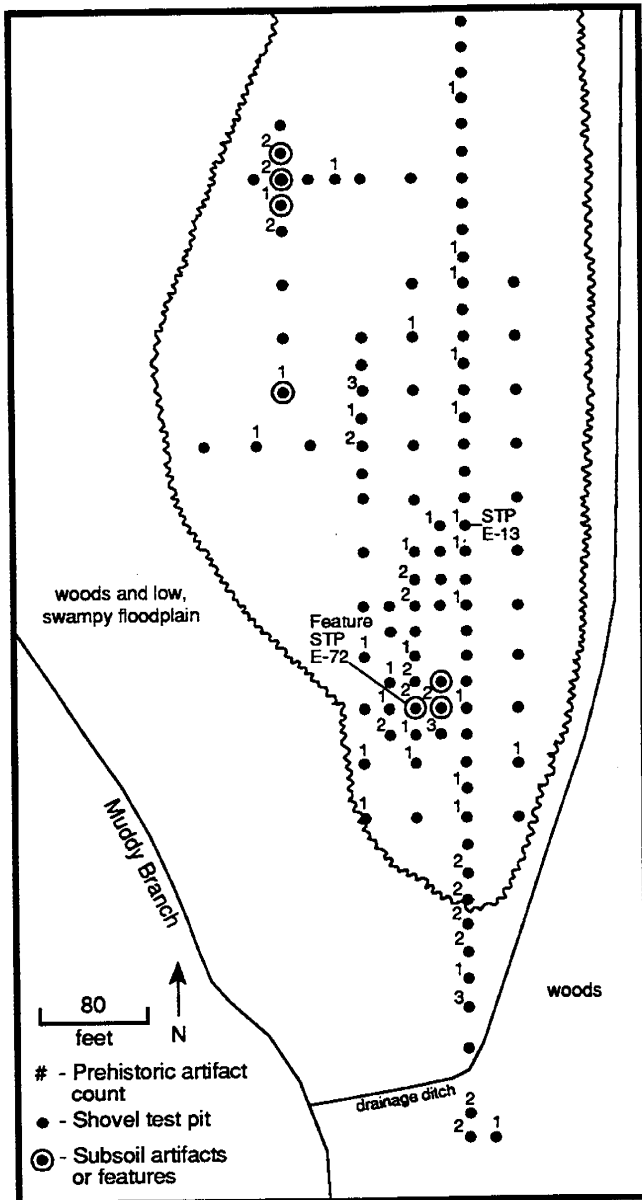
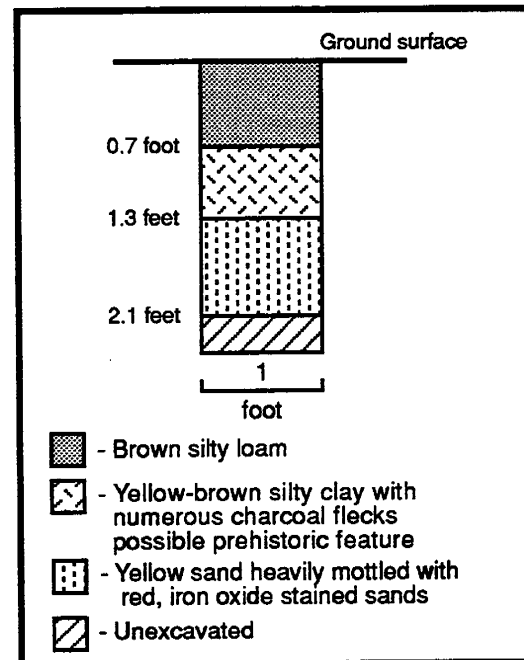


FIGURE 54

Soil Profile of STP E-72 Showing Possible Prehistoric Feature, 7K-C-396

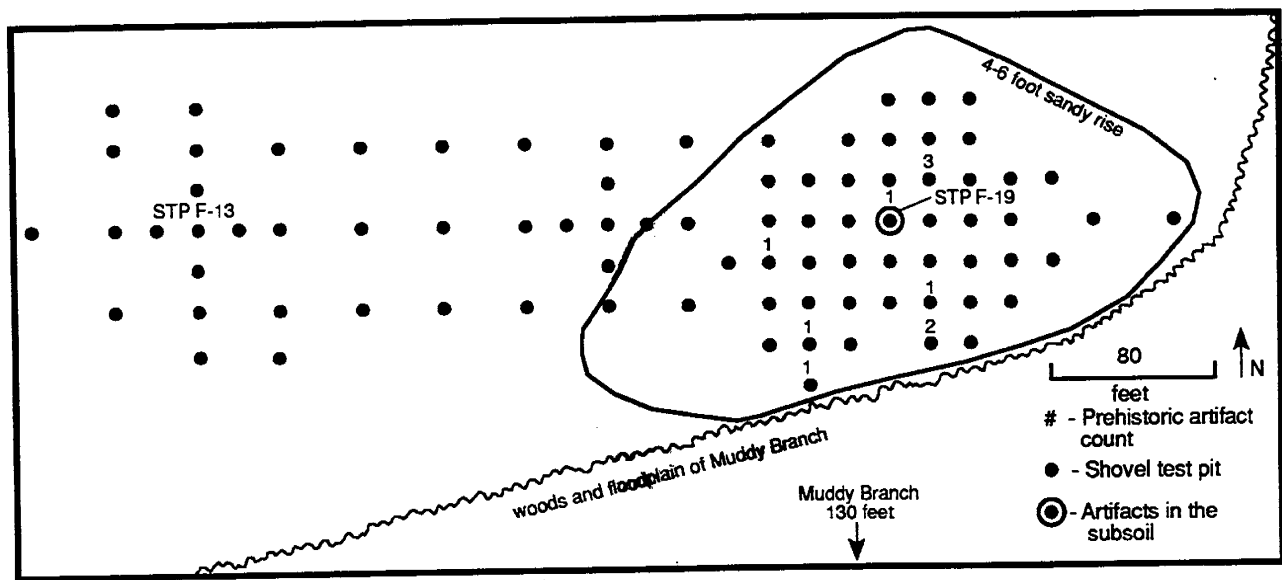


49 tests (44%). Seven of these 49 tests also located prehistoric artifacts below the plow zone in intact subsoil contexts. One possible prehistoric feature was located in these intact soils. This feature was defined by charcoal flecks in the subsoil, but no artifacts or feature edges were located. A profile of STP E-72 showing this possible feature is shown in Figure 54.

A variety of prehistoric artifacts were recovered from 7K-C-396. Artifact density ranged from one to three prehistoric artifacts per shovel test. Prehistoric artifacts recovered included a chert stemmed point, grit-tempered ceramics (probably Minguannan), and a rhyolite flake. All of these artifacts came from the plow zone. Jasper and quartz flakes were the only artifacts recovered from the subsoil. Fire-cracked rock was also found in the plow zone.

FIGURE 55

Location of all Phase I Tests and Total Prehistoric Artifact Distribution at 7K-C-395

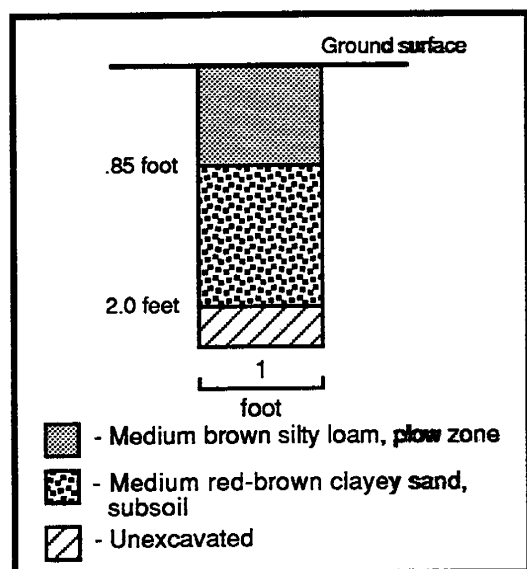


The presence of both a stemmed point and possible Minguannan ceramics indicates a Woodland I (3000 B.C. - A.D. 1000) and possible Woodland II (A.D. 1000 - A.D. 1600) occupation. The presence of diagnostic artifacts, artifacts in intact subsoil contexts, non-local lithic material, and preserved prehistoric cultural features led to the determination that 7K-C-396 warrants Phase II testing if the site is ever impacted by future construction. As 7K-C-396 is not to be impacted by proposed borrow pit and wetland replacement, no further work is recommended at this time.

The second prehistoric site north of Muddy Branch in Area 4E is 7K-C-395. Site 7K-C-395 is located on a slight 4 foot to 6 foot sandy rise approximately 200 feet north of Muddy Branch (Figures 35 and 43). The site is located in a fallow field and was identified by shovel tests excavated at 20 foot and 40 foot intervals along the present woodline. A total of 84 shovel test pits were excavated and prehistoric artifacts were recovered from seven tests over a small, 80 foot by 90 foot area (Figure 55). A total of ten prehistoric artifacts were recovered: five quartz and jasper flakes, two chalcedony flakes, two small fire-cracked rock fragments, and one quartzite Woodland I stemmed point (3000 B.C. - A.D. 1000). This stemmed point was heavily worn and was found in the subsoil in STPF-19 and was the only artifact found below the plow zone over the entire site. A profile of STPF-19 showing a typical soil

FIGURE 56

Typical Soil Profile of 7K-C-395, (STP F-19)



profile of 7K-C-395 is given in Figures 55 and 56.

Prehistoric artifact densities were consistently very low at 7K-C-395. Only three of the seven artifact-bearing shovel tests contained more than one artifact. Only one artifact was recovered from below the plow zone and no cultural features were identified. Phase I shovel tests excavated over the entire rise at 20 foot intervals yielded no other artifacts and the potential for further artifacts or cultural features is low. The low density of prehistoric artifacts and the low potential for further artifacts led to the determination that 7K-C-395 does not warrant Phase II testing.

Historical artifacts were recovered from 24 of the 84 total shovel tests excavated at 7K-C-395 (Figure 57). One small fragment of a slip-decorated redware vessel was recovered from STP F-13 approximately 300 feet west of the area of prehistoric artifacts (Figure 57). This redware sherd, typically a diagnostic eighteenth century artifact, was recovered from

FIGURE 57

Location of all Phase I Tests and Total Historical Artifact Distribution at 7K-C-395

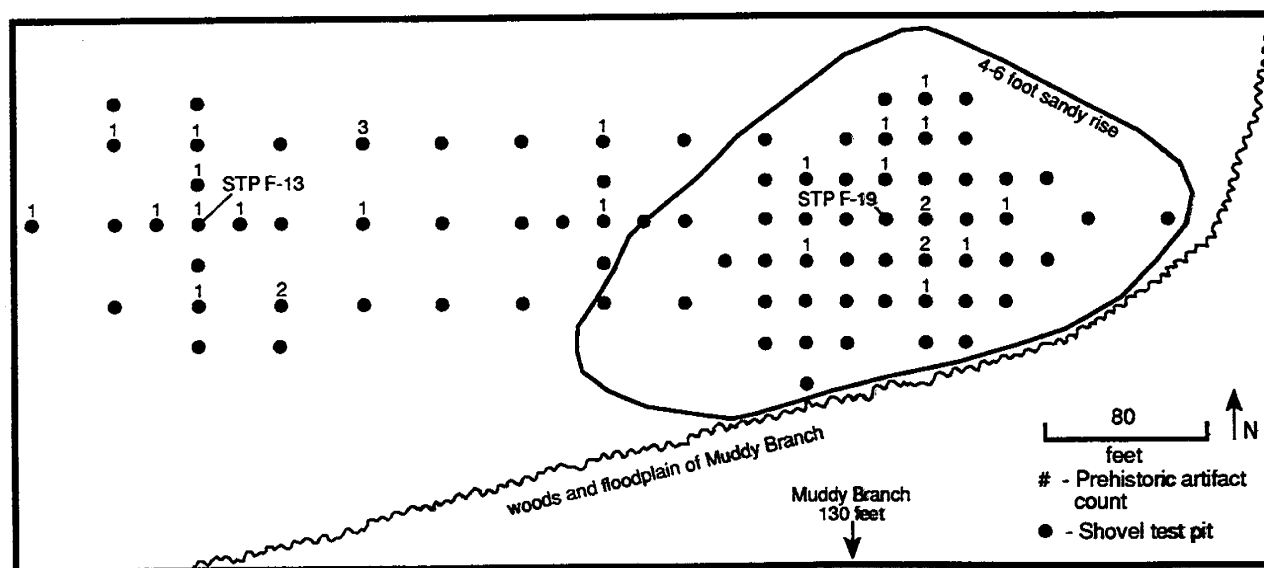
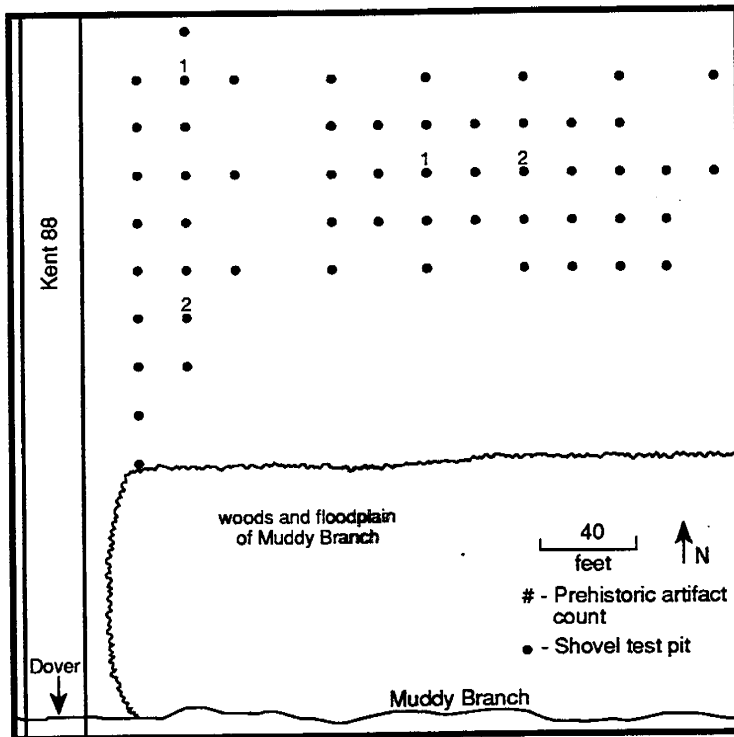


FIGURE 58

Location of all Phase I Tests and Total Prehistoric Artifact Distribution at 7K-C-409



the plow zone and additional shovel tests were excavated in the area. Historical artifact densities remained very low (one artifact per shovel test) and no evidence of a historical site was identified. The few historical artifacts recovered were typically late nineteenth and early twentieth century coal, whiteware, and aqua and amber bottle glass fragments. These artifacts represent simple plow zone scatter deposits probably from the Alexander Laws Farm site house (7K-C-394) located approximately 800 feet to the north. No historical artifacts or cultural features were identified in intact

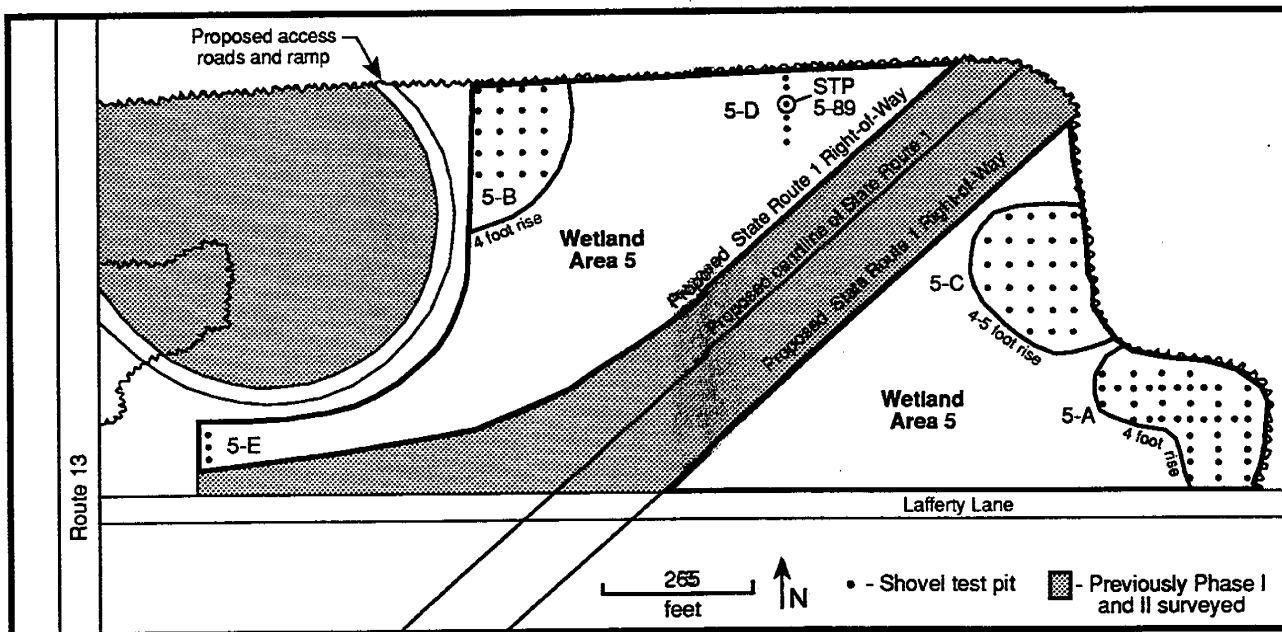
deposits and no further work is recommended.

The final archaeological site identified north of Muddy Branch in Area 4E is 7K-C-409. This site is bounded on the west by Kent 88 and is located on a slight 4 foot sandy rise north of the densely wooded floodplain of Muddy Branch (Figures 35 and 43). Prehistoric artifacts were located in four of 55 total shovel tests (Figure 58). These artifacts consisted of two chert flakes, one fire-cracked rock fragment, one quartz flake, one jasper flake, and two chalcedony flakes. Shovel tests were excavated at 20 foot and 40 foot intervals along the entire rise, but no other prehistoric artifacts were recovered. All artifacts came from the plow zone and no cultural features were identified. In addition, no diagnostic prehistoric artifacts were recovered and the site does not warrant Phase II testing.

Conclusions and Recommendations

A total of nine archaeological sites were located in Wetland Area 4. Although this property will not be impacted by present design plans, seven sites were determined to warrant Phase II testing if

FIGURE 59
Location of all Phase I Tests in Area 5



impacted by future construction. Two of these seven sites, 7K-C-400 and 7K-C-394, are historical sites. One site, 7K-C-398, is a multi-component site consisting of the adjacent remains of a mid- to late eighteenth century farm and an earlier prehistoric occupation. The remaining four sites warranting future Phase II testing are prehistoric sites: 7K-C-393, 7K-C-397, 7K-C-399, and 7K-C-396.

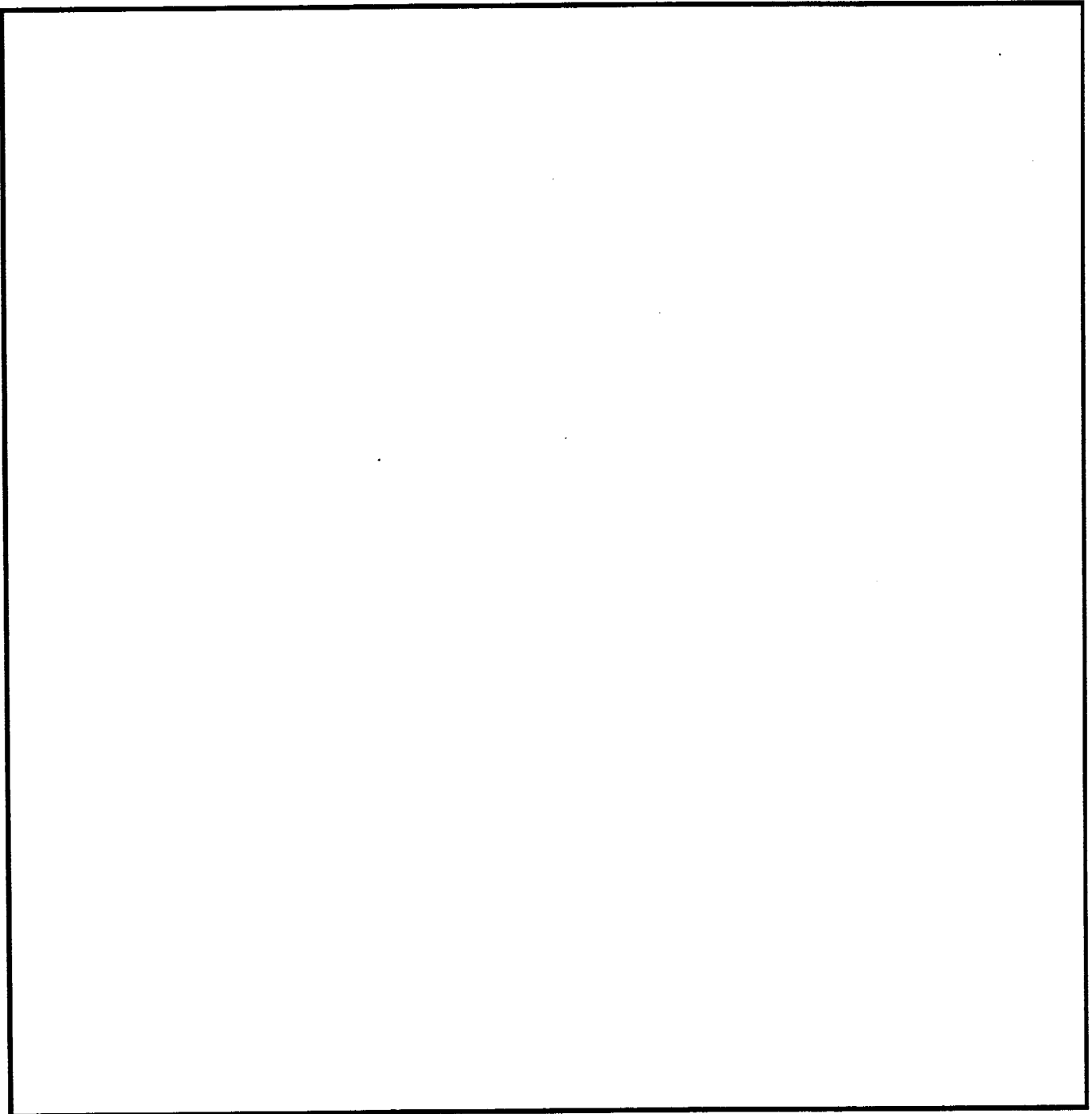
AREA 5, LAFFERTY LANE

Area 5 is located southeast of Dover along the north side of Lafferty Lane (Figures 1 and 59, Plate 11). Area 5 is a large moderately- to poorly-drained fallow field bisected by the proposed State Route 1 right-of-way. The field is comprised predominantly of Sassafras sandy loam with large pockets of poorly-drained Fallsington soils. Elevations range from 20 to 30 feet above sea level. The highest elevations in the area correspond to slight 4' to 6' sandy rises along the edges of the poorly-drained Fallsington soils.

Area 5 was initially pedestrian surveyed in 1987 as part of the Phase I survey of the proposed State Route 1 corridor. The field was planted in soybean and surface visibility was good with approximately 20% of the ground visible. Four archaeological sites; three prehistoric, and one historical, were located

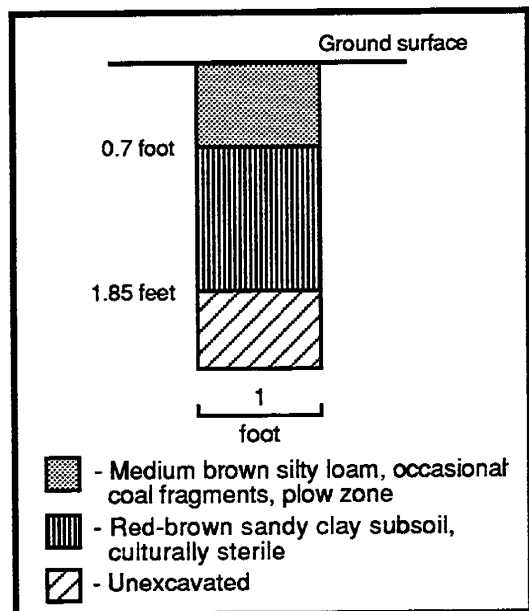
PLATE 11

Aerial View of Area 5 (Lafferty Lane),
November 1990



(Bachman, Grettler, and Custer 1988). All four sites were determined not eligible for listing on the National Register of Historic Places.

FIGURE 60
Typical Soil Profile in
Area 5 (STP 5-89)



The Phase I survey of the proposed borrow pit and wetland replacement portion of Area 5 tested five additional potential site locations. The location of these five sub-areas; 5-A to 5-E, is shown in Figure 59. A total of 96 shovel tests were excavated at 20' and 40' intervals at these locations.

No historical or prehistoric sites were located by these tests in Area 5. Testing was concentrated on three slight 4' sandy rises: 5-A (41 STPs), 5-B (20 STPs), and 5-C (26 STPs). Two other small rises, 5-D and 5-E, were tested by six and three shovel test pits respectively (Figure 59).

Historical artifacts, predominantly coal, were recovered from the majority of the shovel tests excavated. Whitewares and amber and clear bottle glass

fragments were also common historical artifacts recovered. Consistently low artifact densities of one to two artifacts per shovel test were recovered in all subareas. These artifacts are the result of simple field scatter and no evidence of any historical site was identified. In addition, no artifacts were recovered from the consistent red-brown sandy clay subsoil of Area 5. The plow zone in Area 5 varied between 0.7' and 0.8' thick. The stratigraphy of Area 5 varied little over the entire parcel and a typical profile is shown in Figure 60.

Conclusions and Recommendations

No historical or prehistoric sites were located in Area 5. All of the previously located sites in the adjacent proposed right-of-way of the State Route 1 corridor have been determined not eligible for listing on the National Register of Historic Places. Thus, no further work is recommended in Area 5.

CONCLUSIONS AND RECOMMENDATIONS

IMPLICATIONS FOR REGIONAL PREHISTORY

A total of 13 prehistoric sites were identified in the five proposed borrow pit and wetland replacement areas (Table 2). Five of the sites were located along Taylor's Gut in Area 2. These five sites were only partially tested by Phase I operations because of access problems. Phase I testing was completed at the remaining eight sites: 7K-C-203, 7K-C-393, 7K-C-395-399, and 7K-C-409. Five of these sites, 7K-C-395, 7K-C-396, 7K-C-397, 7K-C-399, and 7K-C-409 are small procurement/processing sites.

Although these five procurement/processing sites are expected to have limited numbers of artifacts and associated cultural features, these sites can still yield significant information about regional prehistory. While none of these five sites were tested by Phase II operations due to design changes, the potential National Register eligibility of these sites should be determined if these sites are ever impacted by future highway construction or development. The eligibility of individual sites would be determined by the presence of significant deposits of artifacts and cultural features in undisturbed contexts. As simple procurement/processing sites, however, these five sites are expected to have small amounts of debitage, little evidence of tool manufacture, limited ceramic artifacts, and only occasional processing and habitation features.

Two prehistoric sites, 7K-C-396 and 7K-C-399, are probably micro-band, and perhaps even macro-band, base camps. Both sites are located in the eastern part of Area 4 and are oriented to Muddy Branch. Site 7K-C-396 consisted of a large, 3.3 acre low density scatter of prehistoric artifacts along the north side of Muddy Branch near its confluence with a small unnamed tributary. The size, setting, and the presence of undisturbed artifacts and prehistoric features at this site indicates a more intensive micro-band or perhaps even a macro-band level occupation. As a micro- or macro-band base camp, 7K-C-396 may include a variety of tool types, abundant lithic debitage from tool reduction and manufacture, and numerous house pits, trash deposits, and activity areas.

Two macro-band base camps, 7K-C-398 and 7K-C-203, were identified in Areas 4 and 3 respectively. Site 7K-C-398 consisted of the remains of a Woodland I base camp and a later, unrelated, eighteenth century occupation along the south side of Muddy Branch. Although part of the historical

TABLE 2
Current Management Status of All Archaeological Sites
in the Proposed State Route 1 Borrow Pit
and Wetland Replacement Areas

Site	Project Area	Components	Phase I Testing	Phase II Testing	National Register Eligible	Further Work
D. Palmatory House (7K-A-122, K-6507)	2N	Historic	Completed	Access denied	Unknown	No
7K-A-123, K-6508	2N	Prehistoric	Partial	Access denied	Unknown	No
7K-A-124, K-6509	2N	Prehistoric	Partial	Access denied	Unknown	No
7K-A-121, K-6506	2N	Prehistoric	Partial	Access denied	Unknown	No
7K-A-119, K-6504	2N	Prehistoric	Partial	Access denied	Unknown	No
7K-A-120, K-6505	2N	Prehistoric	Partial	Access denied	Unknown	No
K-3982	2N	Historic	Partial	Access denied	Unknown	No
Pollack Site (7K-C-203)	3	Prehistoric and Historic	Completed	Completed	Yes	Yes
7K-C-203A	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203B	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203C	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203D	3	Prehistoric and Historic	Completed	Completed	Yes	Yes
7K-C-203E	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203F	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203G	3	Prehistoric	Completed	Completed	Yes	Yes
7K-C-203H	3	Historic	Completed	Completed	Yes	Yes
A.J. Wilson Farm (7K-C-400, K-2071)	4W	Historic	Completed	None; site not to be impacted.	Unknown	No
7K-C-393, K-6491	4W	Prehistoric	Completed	None; site not to be impacted.	Unknown	No
7K-C-397, K-6495	4E	Prehistoric	Completed	None; site not to be impacted.	Unknown	No
7K-C-398, K-6496	4E	Prehistoric and Historic	Completed	None; site not to be impacted.	Unknown	No
7K-C-399, K-6497	4E	Prehistoric	Completed	None; site not to be impacted.	Unknown	No
7K-C-396, K-6494	4E	Prehistoric	Completed	None; site not to be impacted.	Unknown	No
7K-C-395, K-6493	4E	Prehistoric	Completed	None; site not to be impacted.	Unknown	No
A. Laws Farm (7K-C-394, K-6492)	4E	Historic	Completed	None; site not to be impacted.	Unknown	No
7K-C-409	4E	Prehistoric	Completed	None; site not to be impacted.	Unknown	No

Note: Recommendations for further work are contingent upon current borrow pit and wetland replacement needs for the State Route 1 corridor. Additional Phase I testing is warranted at all of the sites in Area 2 where testing was not completed. Phase II testing is warranted at the following sites if these sites are impacted by future construction: 7K-A-122, 7K-C-393, 7K-C-394, 7K-C-396, 7K-C-397, 7K-C-398, 7K-C-399, and 7K-C-400.

site may have impacted the earlier prehistoric site, the presence of diagnostic Woodland I artifacts and features in intact subsoil deposits indicates a high potential for further intact remains. The presence of Woodland I pottery in a number of shovel tests indicates excellent preservation. Site 7K-C-398 is also large (0.8 acres) and clearly defined by the Muddy Branch floodplain to the north. Further testing may also find that this site is related to nearby 7K-C-399. Both sites are located on the same sandy rise between Muddy Branch and an unnamed tributary to the east. If these sites are related, data from the unplowed portions of 7K-C-399 could yield important data for interpreting the larger 7K-C-398 and other Woodland I sites in general.

The largest and most significant prehistoric site identified by Phase I and II testing was the Pollack site, 7K-C-203 (Area 3). The site itself measures over 65 acres in size. Phase II testing found that over 16.9 acres, of the 50 acres of the site to be impacted by proposed borrow pitting, contained significant evidence of intensive prehistoric occupation over all four major time periods (7500 B.C.-A.D. 1600). The range of pottery, tools, and features confirms the National Register eligibility of the site. The range of artifacts, features, and environmental settings at the Pollack site also indicates that it was both intensively and extensively occupied over at least two major time periods, Woodland I and Woodland II. The extent of the Paleo-Indian and Archaic components of the Pollack site do not appear to be as great as the two later periods. Judging from the predominance of Woodland I ceramic artifacts and projectile points, site 7K-C-203 was probably most intensively occupied from 3,000 B.C. to A.D. 1000.

The Pollack site would also be only the second large-scale excavation of a Woodland I base camp site with well-preserved sub-surface features in central Delaware. Furthermore, in all of Delaware only one other base camp site (the Delaware Park site - Thomas 1981) has been subjected to large-scale intensive excavations and only a few base camp sites have had small sections intensively excavated (eg. Clyde Farm - Custer, De Santis, and Watson 1987). Similar large-scale excavations, however, have also recently been undertaken at two other Woodland I base camps, Carey Farm (7K-D-3) and the Snapp site (7NC-G-101). Data from the Pollack site could be compared to these two sites.

In general, the site locations noted in this study confirm the interpretations of Woodland I interior procurement and base camp sites noted in the original predictive survey of the State Route 1 Corridor (Custer et al. 1984). These site locations are also consistent with those noted in the Management Plan

for Delaware Prehistoric Cultural Resources (Custer and De Santis 1986) and previous work in central Delaware (Custer et al. 1984; Custer, Bachman, and Grettler 1986, 1987; Custer and Bachman 1986; Bachman, Grettler and Custer 1988; Hodny, Bachman, and Custer 1989; and Riley et al. 1993). For the most part, Woodland I settlement focused on major drainages. From these base camps, forays to specific resources were made. These resources produced discrete procurement and processing sites. Based on the sites identified in this study, forays from base camps along the Leipsic River (7K-C-203) and Muddy Branch (7K-C-398) produced discrete micro-band camps and procurement/processing sites. For example, forays from 7K-C-398 on Muddy Branch were probably made to nearby micro-band base camps (7K-C-396 and 7K-C-399) and to local procurement/processing sites (7K-C-395, 7K-C-396, 7K-C-399, and 7K-C-409).

Further study of the constellation of interior micro-band and procurement/processing sites around the Pollack site and 7K-C-398 is needed to better understand the organization and hierarchy of Woodland I settlements. In this hierarchical model of base camps and procurement/processing sites, more generalized forays appear to have produced scattered, less discrete sites consisting of generalized lithic scatters. More focused and intensive forays appear to have produced more discrete sites used for longer, and probably more intensive, periods of procurement activity. In any event, further study of the variability of Woodland I settlement patterns is needed (see Custer 1988:45-46) and could be compared to other sites in the Middle Atlantic region.

One important settlement pattern question that could be addressed by further work at the Pollack site is the degree of sedentary settlement in Woodland I populations. Current models of Woodland I Period settlement in the Delaware Coastal Plain (Custer 1984; 1989) note that base camps provide the residential focus for settlement. In most of these models, the settlement at the base camps has traditionally been viewed as relatively sedentary. The presence of pit houses and sub-surface storage features is seen as an indication that the occupations of the sites spanned a significant portion of the year, if not the entire year. However, recent research at other similarly dated sites in the Delaware River Valley (Watson and Custer 1990) has suggested that Woodland I groups may not have been as sedentary as previously thought. Further research at the Pollack site could yield data on the duration and possible seasonality of prehistoric settlement at the site.

The broad range of lithic raw material present at all of these Woodland I sites and the presence of a high percentage of flakes with cortex indicates cobble reduction. This range of lithic raw materials includes jasper, quartz, quartzite, chalcedony, and chert. The presence of non-local argillite and rhyolite at the three largest sites, 7K-C-203, 7K-C-396, and 7K-C-398 indicates incipient trading patterns and/or long-distance lithic procurement patterns. These larger sites also have a full range of tool types including early stage biface rejects, cores, utilized flakes, flake tools, and carefully curated bifaces, including heavily resharpened points. Some of the bifacial knives and projectile points at the Pollack site in particular showed evidence of multiple sharpening and reuse. The presence of diagnostic Woodland I ceramics at all three sites (predominantly Marcey Creek and Hell Island wares) and cultural features at two sites (7K-C-203 and 7K-C-396) indicates a range of procurement, processing, and domestic activity.

The prehistoric components of the Pollack site (7K-C-203) could also address questions regarding settlement patterns and adaptation in the Paleo-Indian, Archaic, and Woodland II periods. The extent of the late Paleo-Indian and Archaic period occupations of the site are not known, but any information on these periods would be important because of the poor quality of data from these relatively rare sites (Custer 1986: 172-74). Of special interest in these two earliest periods are questions concerning site locations, lithic procurement and the use of nonlocal materials, and paleoenvironmental settings. The large size of the Pollack site and the presence of both primary and secondary drainages and multiple environmental settings may also yield additional significant information about prehistoric life on the Delmarva before 3000 B.C.

Although the Pollack site does not appear to have been as intensively utilized during the Woodland II period as during Woodland I times, this site could yield significant data on settlement and subsistence patterns between A.D. 1000-A.D. 1650. The presence of diagnostic Woodland II pottery, near high concentrations of intact prehistoric cultural features suggests that house pits, trash features, and activity areas may be present. Northern Kent County and southern New Castle County have been hypothesized as areas of low population density during Woodland II times (Wilkins 1976; Griffith 1977) and data from the Pollack site could test this hypothesis.

Additionally, a comparison of Woodland II settlement-subsistence systems and social organizations to Woodland I systems is an important research question. The presence of spatially discrete

Woodland I and Woodland II components at the Pollack site may also yield important data about cultural and environmental changes in Delaware between these two periods.

IMPLICATIONS FOR REGIONAL HISTORY

Phase I testing identified six historical archaeological sites on four separate properties. The two earliest and most significant sites were the historical components of Areas C and H of the Pollack site (7K-C-203C and 7K-C-203H). These two sites are the remains of late seventeenth to early eighteenth century farmsteads. One other eighteenth century site was identified; the historical component of 7K-C-398 located in Area 4. The remaining three sites, 7K-A-122, 7K-C-400, and 7K-C-394, are mid-nineteenth to early twentieth century rural farm complexes. One other historical loci, K-3982, was identified in Area 2. This loci consisted of an extant early twentieth century farm that was not tested by Phase I excavations.

All six historical sites were determined to be potentially eligible for listing on the National Register of Historic Places. Diagnostic historical artifacts and features were found in undisturbed contexts and a high potential for additional intact deposits was identified at each site. Only the two Pollack sites, however, were to be impacted by proposed borrow pit and wetland replacement and were thus tested by Phase II operations.

Phase II testing at 7K-C-203C and 7K-C-203H determined that both sites are likely to yield additional data significant to current research questions in history and archaeology. These two sites are the earliest historical archaeological sites ever tested by systematic archaeological excavations. More specifically, these two early sites could be used to study four primary research domains as identified by the Historic Archaeological Resource Management Plan for Delaware (De Cunzo and Catts 1990) and the Delaware Statewide Comprehensive Historic Preservation Plan (Ames, Herman, and Siders 1989). These four domains are (1) Domestic Economy, (2) Manufacturing and Trade, (3) Landscape, and (4) Social Group Identity and Behavior (De Cunzo and Catts 1990).

Of these four domains, the two most applicable to the Pollack sites are Domestic Economy and Landscape. Broadly interpreted, these two research domains seek to reconstruct the past social, demographic, and economic landscape of central Delaware, and by implication, the Middle Atlantic

TABLE 3
Major Time Periods in Delaware History

1. 1630 - 1730 +/-	Exploration and Frontier Settlement
2. 1730 - 1770 +/-	Intensified and Durable Occupation
3. 1770 - 1830 +/-	Early Industrialization
4. 1830 - 1880 +/-	Industrialization and Capitalization
5. 1880 - 1940 +/-	Urbanization and Early Suburbanization

region. As small late seventeenth and early eighteenth century farmsteads, the two Pollack sites could be used to trace the critical social and economic changes that occurred in central Delaware in the first period of European settlement.

This first period of settlement in central Delaware has been characterized by Ames, Herman, and Siders (1989) as a period of Exploration and Frontier Settlement (1630-1730 +/-). The major time periods in Delaware history are summarized in Table 3. Both of the Pollack sites date primarily to this period. This earliest period in Delaware history saw the first attempts at European settlement. Settlement focused along the banks of navigable rivers such as the Leipsic River and Alston Branch. These sites were along the frontier of the Delmarva interior and were on the very edge of English civilization. Beyond simple subsistence farming and hunting, European settlers in this period forged the first commercial connections between these outlying plantations and the small commercial centers of Lewes, New Castle, and Philadelphia.

The two Pollack historical sites can also be placed in the local and regional context of other early eighteenth century sites in Delaware and the Middle Atlantic. Specifically, sites 7K-C-203C and 7K-C-203H can be compared to the nearby Strickland Plantation near Smyrna (Catts, Jamison, and Scholl n.d.). The Strickland Plantation was owner-occupied from ca. 1726-1764. The earliest occupation of this site should be comparable to Areas C and H, where the absence of white salt-glazed stoneware and creamware sherds from the plow zone suggests ca. 1680-1740 occupations. Sites 7K-C-203C and 7K-C-203H could also be compared to four other mid-eighteenth century sites in Delaware: Benjamin Wynn Tenancy and Blacksmith Shop site (Gretler et al. n.d.), Thompson's Loss and Gain site (Guerrant 1988),

Marsh Grass site (Thomas 1983), and the Whitten Road site (Shaffer et al. 1988). All of these comparable sites date primarily to the second major time period in Delaware, Intensified and Durable Occupation, 1730-1770 (Table 3).

Due to the very early nature of both Pollack historical sites, basic data collection on seventeenth and early eighteenth century lifeways would be a primary goal of data recovery operations. This data would include archaeological and material culture information on architecture and land use, farmstead layout and spatial organization, foodways and faunal remains, and self-sufficiency and market participation. Phase II testing recovered some of this information and determined that both sites have a very high potential for further significant data.

The remaining four historical archaeological sites identified during this project were one other eighteenth century site, 7K-C-398, and three mid-nineteenth to early twentieth century farms: 7K-A-122, 7K-C-394, and 7K-C-400. None of these sites were tested by Phase II operations, although such testing is warranted if these sites are ever impacted by future construction.

Site 7K-C-398 appears to be the remains of a small eighteenth century farmstead along the south bank of Muddy Branch. The setting of this site is similar to two other nearby and recently excavated mid-to late eighteenth century tenancies, the Lockerman's Range component of Dover Downs Hill B (7K-C-365B, Grettler et al. 1991a) and the Benjamin Wynn Tenancy and Blacksmith Shop site (7K-C-362, Grettler et al. n.d.). The Muddy Branch area was intensively settled in the eighteenth century and a great deal is known about the early land owners and tenants living there. Further research on this site could seek to answer many of the same questions as those applicable to the two Pollack sites.

Site 7K-C-398 could also be compared to many of the same mid-eighteenth century sites as 7K-C-203C and 7K-C-203H. Such mid-eighteenth century sites yield data not only on the second period in Delaware history (Table 3), but also data on the tremendous social and economic changes occurring in the late eighteenth and early nineteenth centuries in Delaware. The seeds of these later changes were sown in the strong colonial economy and widespread agricultural tenancy that developed earlier in the eighteenth century.

Site 7K-C-398 also contained a significant prehistoric component. Although this prehistoric component dated to the Woodland I period, the possibility of Woodland II and perhaps even Contact

period remains exists. Contact period sites (A.D. 1650-A.D. 1750) are extremely rare and any data from 7K-C-398 or the two Pollack historical sites (7K-C-203C and 7K-C-203H) would be very significant to our understanding of both prehistoric and historical lifeways during a period of profound change for both cultures. Phase II testing, however, found no evidence of Contact Period remains at any of these three sites.

The single most important social and economic change in nineteenth century Delaware was the replacement of a thriving eighteenth century colonial economy with a new, but increasingly volatile, national economy after the American Revolution (Grettlar 1990; Lindstrom 1973). This vast change occurred between 1780 and 1840 and affected all levels of Delaware and Middle Atlantic society. Similar changes after independence from Great Britain were occurring in other parts of the country, particularly in the older and more settled areas of New England and the Chesapeake.

The effects of this broad economic change continued through the rest of the nineteenth century. Some of these effects directly affected agriculture and many nineteenth century farms in Delaware, including 7K-A-124, 7K-C-394, and 7K-C-400. As archaeological sites with little or no standing structural remains, these sites reflect broad patterns of site formation, land use, and agricultural change over the nineteenth and early twentieth centuries. The research domains of Domestic Economy and Landscape (De Cunzio and Catts 1990) have proved to be the most fruitful avenues of investigation for sites from this period. Indeed, a number of similar nineteenth and twentieth century farms have been studied in central Delaware and recovering comparable data from these three sites would be the primary goal of further research. Some of these comparable owner- and tenant-occupied nineteenth and early twentieth century farms in central Delaware include the Buchanan-Savin Farm (Scholl et al. 1993), Moore-Taylor and Wilson-Lewis Farmsteads (Grettlar et al. n.d.), W. Eager site (Grettlar et al. 1991b), and the C. Kimmey Tenant Farm site (Jamison et al. n.d.).

In conclusion, the goal of all further research on the historical archaeological sites within all of the wetland construction areas is to collect comparable data and to ask comparable questions over time in order to better understand diachronic cultural processes. Data from the two historical components of the Pollack site, in particular, can yield significant information pertaining to current research questions in historical archaeology and the history of Delaware and the surrounding Mid-Atlantic region.

CULTURAL RESOURCE RECOMMENDATIONS

Phase I and II archaeological investigations were conducted on ~~over~~ 490 acres of proposed borrow pit and wetland replacement areas in Kent County, Delaware. All ~~of~~ these improvements are associated with the construction of State Route 1. Phase I testing identified 17 prehistoric and historical archaeological sites on five separate project areas. The current status and management recommendations for all 17 sites are summarized in Table 2.

Phase II testing was undertaken on only one property, the Pollack property (Area 3), located south of Smyrna near Garrison's Lake. This property contained only one site, ~~the~~ Pollack site (7K-C-203). The 16 sites on the remaining four project areas were not tested by Phase II operations because design changes to State Route 1 removed these four areas from consideration for proposed borrow pit and wetland construction. The design changes determined that the Pollack property would be able to supply all current borrow pit and wetland replacement needs.

Phase II testing at the Pollack site identified eight discrete loci of significant prehistoric and historical occupation. The Pollack site was first identified in 1985, and was ~~determined~~ to be eligible for listing in the National Register of Historic Places in 1988. The site ~~consists~~ of a 65 acre parcel on a peninsula of land bounded on the north by the Leipsic River and on the south and east by Alston Branch. Over 1500 test units were excavated during the Phase II survey. This survey identified the limits of these eight loci. Phase II testing also sought to recover sufficient archaeological information to generate a meaningful data recovery plan should avoidance, the preferred mitigation alternative, prove impossible.

Phase II testing at 7K-C-203 recovered diagnostic prehistoric artifacts from the late Paleo-Indian, Archaic, Woodland I, and Woodland II periods. The site was a large base camp used extensively during Woodland I times (3000 B. C. - A. D. 1000) and possibly other periods. ~~The~~ Woodland I component of 7K-C-203 was the primary prehistoric component identified. Artifacts, including Woodland I and II pottery, were found in buried, intact contexts and evidence of prehistoric features were also found. Significant prehistoric components were found in seven of the eight loci of 7K-C-203: Areas A, B, C, D, E, F, and G.

Phase II testing at the Pollack site also identified the limits of two late seventeenth to early eighteenth century farmsteads. These two farmsteads date to approximately 1680-1740 and were located

in Areas C and H. These two farmsteads are approximately 3,000' apart and are both oriented to Alston Branch. Diagnostic seventeenth and early eighteenth century artifacts including Staffordshire earthenwares and Rhenish blue and gray stonewares were recovered from both plow zone and intact subsoil contexts. Evidence of intact historical features were also found at both loci.

Further work is recommended at all eight loci of the Pollack site if avoidance, the preferred mitigation alternative, proves impossible. The Pollack site is a known National Register site and data from this site would be an important contribution to our understanding of Delaware history and prehistory.

In addition to the Pollack site, 16 other sites were identified and tested (Table 2). As these sites are not currently threatened by proposed construction, no further work is recommended at present for any of these sites. Phase I testing, however, should be completed at six sites in Area 2 (7K-A-119, 7K-A-120, 7K-A-121, 7K-A-123, 7K-A-124, and K-3982) if these sites are ever impacted by future construction. Similarly, Phase I testing at seven sites determined that these sites would warrant Phase II testing if they were ever impacted by future construction. These seven sites are 7K-A-122, 7K-C-393, 7K-C-394, 7K-C-396, 7K-C-397, 7K-C-398, 7K-C-400. The remaining two sites determined to never warrant further work are 7K-C-395, and 7K-C-409.

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APPENDIX I

TOTAL ARTIFACT COUNTS FROM SITES IN BORROW PIT AND WETLAND REPLACEMENT AREAS

NOTE: No sites were identified in Areas 1 and 5, so no artifact totals are presented for these areas. Phase I artifact totals for Areas 2 and 4 will be presented first followed by the Phase I and II artifact totals for Area 3.

PHASE I ARTIFACT TOTALS FOR AREAS 2 and 4

	7K-A-119 (Area 2)	7K-A-120 (Area 2)	7K-A-121 (Area 2)	7K-A-123 (Area 2)
Flakes (Cortex)				
Quartzite	2(1)	1	--	--
Quartz	4(1)	4	1	--
Chert	3(1)	2(1)	--	--
Jasper	7(4)	4(3)	--	--
Rhyolite	--	1	--	--
Argillite	--	--	1	--
Chalcedony	1	1	--	--
Util. Flakes				
Quartz	1	1	--	--
Chert	--	1	--	--
Chalcedony	1	--	--	--
Flake Tools				
Quartz	1	1	--	--
Archic Points				
Chert	1	--	--	--
Other Bifaces				
Quartz	1	--	--	--
Shatter				
Quartz	2	1	--	--
Ground Stone Tools	--	--	--	1
Prehistoric Ceramic				
Minguannan	--	1	--	--
FCR	4	6	--	--
Historic Artifacts	45	3	3	--

KEY: LSBR - Late Stage Biface Reject
 ESBR - Early Stage Biface Reject
 FCR - Fire Cracked Rock

Util. - Utilized
 Misc. - Miscellaneous

APPENDIX I: PHASE I ARTIFACT TOTALS FOR AREAS 2 and 4 (cont.)

	7K-A-124 (Area 2)	7K-C-393 (Area 4)	7K-C-395 (Area 4)	7K-C-396 (Area 4)
Flakes (Cortex)				
Quartzite	2	--	--	--
Quartz	6(2)	1	3	9(3)
Chert	5(2)	1	--	3(1)
Jasper	6(4)	4(3)	2(1)	25(11)
Rhyolite	1	--	--	1
Argillite	1	--	--	--
Chalcedony	2	1(1)	2	4(2)
Woodland I Points				
Quartzite	--	--	1	--
Chert	--	--	--	1
Bifaces				
Jasper LSBR	1(1)	1	--	--
Shatter				
Quartz	21(3)	--	--	3(1)
Prehistoric Ceramic				
Minguannan	1	--	--	7
FCR	78	3	2	9
Historic Artifacts	3	33	32	43

	7K-C-397 (Area 4)	7K-C-398 (Area 4)	7K-C-399 (Area 4)	7K-C-409 (Area 4)
Flakes (Cortex)				
Quartzite	--	1(1)	--	--
Quartz	3	11	1	1
Chert	--	4(1)	1(1)	2
Jasper	1	18(3)	10(4)	1
Argillite	--	2	--	--
Chalcedony	--	3	2(1)	2(1)
Util. Flakes				
Jasper	--	4(2)	--	--
Flake Tools				
Chalcedony	--	1	--	--
Shatter				
Quartz	--	1	--	--
Cores				
Jasper	--	1(1)	--	--
Prehistoric Ceramic				
Steatite Tempered	--	1	--	--
Minguannan	--	8	--	--
Mockley	--	2	--	--
FCR	--	12	2	1
Historic Artifacts	--	90	--	--

APPENDIX I: PHASE I ARTIFACT TOTALS FOR AREAS 2 and 4 (cont.)

	7K-A-124 (Area 2)	7K-C-394 (Area 4)	7K-C-397 (Area 4)	7K-C-398 (Area 4)
Historic				
Ceramic				
Redware	--	17	2	19
Creamware	--	2	--	--
Pearlware	--	7	--	--
White Granite	--	7	--	--
Yellowware	--	4	--	--
Stoneware	--	1	--	--
Whiteware	1	34	5	--
Porcelain	--	2	--	--
Earthenware	--	--	--	1
Staffordshire	--	--	--	3
Tobacco Pipe	--	1	--	8
Unidentifiable	--	2	--	--
Glass				
Bottle	1	27	5	2
Jar	--	25	--	--
Table	--	4	--	--
Household	--	18	--	--
Unidentifiable	--	70	--	--
Architectural				
Window Glass	--	78	8	--
Brick Wt. (grams)	--	745	--	--
Nail				
Cut	--	12	--	2
Wire	1	22	3	--
Unid.	--	194	1	1
Misc. Materials	--	14	--	--
Miscellaneous				
Misc. Metal	--	79	6	2
Arms/Ammunition	--	1	--	2
Bone/Teeth	--	7	--	15
Shell	--	39	2	24
Plastic	--	4	--	--
Coal Wt. (grams)	--	2	--	--
Drain/Sewer Tile	--	15	--	--
Textiles	--	4	--	--

APPENDIX I: PHASE I ARTIFACT TOTALS FOR AREA 4 (cont.)

	7K-C-400 (Area 4)	7K-C-409 (Area 4)
Historic		
Ceramic		
Redware	11	23
Creamware	4	--
White Granite	3	--
Whiteware	11	12
Porcelain	1	1
Tobacco Pipe	--	1
Tin Glazed	--	1
Scratch Blue	--	1
Annular Whiteware	--	1
Unidentifiable	1	--
Glass		
Bottle	22	--
Table	1	--
Household	72	--
Unidentifiable	13	--
Architectural		
Window Glass	36	--
Brick Wt.(grams)	591	--
Nails		
Cut	6	--
Wire	2	--
Unid.	15	--
Misc. Materials	3	--
Personal		
Toys	1	--
Miscellaneous		
Arms/Ammunition	1	--
Bone/Teeth	2	1
Shell	16	--
Drain/Sewer Tile	3	--

APPENDIX I: PHASE I ARTIFACT TOTALS FOR AREA 3

Prehistoric		Historic	
Flakes (Cortex)		Ceramic	
Quartzite	3	Redware	3
Quartz	8(3)	Creamware	1
Chert	11(7)	Tobacco Pipe	5
Jasper	23(14)	Glass	
Ironstone	1	Unidentified	5
Other	1	Architectural	
Utilized Flakes		Nails	
Chert	1(1)	Unidentified	7
Jasper	1	Miscellaneous	
Flake Tools		Misc. Metal	1
Jasper	2(1)	Bone	2
Woodland I Points		Shell	1
Jasper	1		
Argillite	1		
Shatter			
Quartz	6(2)		
Jasper	1(1)		
FCR (grams)	967g		

PHASE II ARTIFACT TOTALS FOR AREA 3

	7K-C-203A	7K-C-203B	7K-C-203C	7K-C-203D
Flakes (Cortex)				
Quartzite	6(3)	63(9)	11(3)	3(2)
Quartz	39(17)	130(32)	48(14)	7
Chert	50(16)	315(114)	148(42)	11(5)
Jasper	88(54)	271(152)	265(107)	15(3)
Rhyolite	1	3	2	--
Argillite	2	2	2	2
Ironstone	1	3(1)	18(3)	7(2)
Other	--	1	3(1)	2(1)
Utilized Flakes				
Quartzite	--	2	1(1)	1
Quartz	--	2(1)	--	--
Chert	1(1)	18(9)	8(2)	1
Jasper	3(1)	17(8)	9(5)	1
Flake Tools				
Quartzite	--	6(2)	--	2(2)
Quartz	2(2)	9(3)	3(1)	--
Chert	1(1)	11(5)	4(3)	--
Jasper	2(1)	10(8)	7(6)	--
Paleo-Indian Points				
Jasper	--	--	--	1
Archaic Points				
Quartz	--	1	--	--
Jasper	--	1	--	--

APPENDIX I: PHASE II ARTIFACT TOTALS FOR AREA 3 (cont.)

	7K-C-203A	7K-C-203B	7K-C-203C	7K-C-203D
Woodland I Points				
Quartz	--	--	2	--
Chert	--	1	--	--
Jasper	2	4	1(1)	1
Argillite	--	1	2	--
Ironstone	--	--	1	--
ESBR				
Chert	--	2(1)	--	--
Jasper	--	--	1(1)	--
LSBR				
Jasper	--	1	--	--
Biface Fragments				
Quartz	--	1(1)	--	--
Chert	2	2(2)	2(1)	--
Jasper	2	2	2(1)	1
Rhyolite	--	1	--	--
Misc. Stone Tools				
Quartz	--	--	--	1(1)
Jasper	--	1(1)	1	--
Shatter				
Quartzite	4(3)	4	7(1)	1(1)
Quartz	28(18)	53(14)	27(7)	3
Chert	3(2)	3(3)	6(2)	--
Jasper	9(6)	29(16)	12(9)	--
Cores				
Quartz	--	5(4)	1(1)	--
Chert	1	2(2)	1(1)	--
Jasper	3(2)	1(1)	--	--
Prehistoric Ceramic				
Wolf Neck	--	--	3	--
Mockley	--	--	1	--
Hell Island	--	--	7	--
Minguannan	--	--	2	--
Unidentifiable	3	9	1	--
Ground Stone Tools				
Hammerstone	--	1	2	1
Grindingstone	--	--	1	--
Other	--	2	--	--
FCR	28	71	30	13
Historic Artifacts	77	102	260	47

APPENDIX I: PHASE II ARTIFACT TOTALS FOR AREA 3 (cont.)

	7K-C-203E	7K-C-203F	7K-C-203G	7K-C-203H
Flakes (Cortex)				
Quartzite	--	2(1)	7(3)	1(1)
Quartz	32(2)	8(1)	12(3)	1
Chert	16(2)	5	29(11)	1
Jasper	27(6)	20(10)	30(19)	2(1)
Rhyolite	1	1	--	--
Argillite	--	1	--	--
Utilized Flakes				
Quartz	--	--	1	--
Chert	--	--	2(1)	--
Jasper	--	--	4(2)	--
Flake Tools				
Quartz	1	1	--	--
Chert	--	1	1	--
Jasper	-	1(1)	--	1(1)
Archaic Points				
Jasper	--	--	1	--
Chert	--	--	--	1
Woodland I Points				
Quartzite	--	--	1	--
Jasper	--	--	2	--
Rhyolite	--	1	--	--
LSBR				
Quartz	--	--	1	--
Other Biface				
Quartz	--	--	--	1
Misc. Stone Tools				
Quartz	--	--	--	1
Shatter				
Quartzite	--	1	2	--
Quartz	4	12(5)	11(2)	2(1)
Chert	1(1)	--	1	--
Jasper	2	1(1)	3(2)	1
Cores				
Jasper	--	--	1(1)	--
Chert	--	--	--	1
FCR	5	1	13	5
Historic Artifacts	26	14	72	305

APPENDIX I: PHASE II ARTIFACT TOTALS FOR AREA 3 (cont.)

	7K-C-203C	7K-C-203F	7K-C-203G	7K-C-203H
Ceramic				
Redware	24	1	4	50
Creamware	3	--	1	1
Pearlware	1	--	2	--
Ironstone	3	--	1	1
Stoneware	1	--	1	3
Whiteware	9	1	11	2
Porcelain	1	--	--	1
Tobacco Pipe	15	--	--	38
Westerwald	--	--	--	4
Unidentifiable	1	--	3	--
Glass				
Container	64	5	29	--
Unidentifiable	2	1	2	18
Architectural				
Window Glass	--	--	--	1
Brick Count	45	--	--	6
Nail				
Wrought	--	--	--	2
Cut	32	1	12	--
Wire	--	--	--	1
Unidentifiable	14	--	--	118
Misc. Materials	3	--	--	--
Personal				
Buttons	--	--	--	2
Miscellaneous				
Misc. Metal	26	1	3	11
Arms/Ammunition	2	--	--	--
Bone	--	--	--	31
Shell	10	--	2	15
Plastic	3	--	--	--
Coal	1	4	1	--

APPENDIX I: PHASE II ARTIFACT TOTALS FOR AREA 3 (cont.)

7K-C-203 Miscellaneous Units

Prehistoric		Historic	
Flakes (Cortex)		Ceramic	
Quartzite	3(1)	Whiteware	5
Chert	20(6)	Tobacco Pipe	3
Jasper	45(15)	Glass	
Other	2(1)	Container	20
Utilized Flakes		Unidentifiable	1
Chert	1	Architectural	
Flake Tools		Window Glass	3
Jasper	2(1)	Brick Count	9
Woodland I Points		Nail	
Jasper	1	Cut	9
ESBR		Unidentifiable	2
Chert	1(1)	Misc. Materials	1
LSBR		Miscellaneous	
Jasper	1	Arms/Ammunition	2
Biface Fragments		Shell	2
Jasper	1	Coal	6
Misc. Stone Tools			
Chert	1(1)		
Shatter			
Quartzite	3(1)		
Jasper	3(3)		
Other	1		
Prehistoric Ceramic			
Hell Island	2		
Minguannan	1		
Townsend	1		
FCR	8		
Historic Artifacts	63		

APPENDIX II **NOTES ON SITE NUMBERS**

(an example)
7K-A-122 (K-6507)

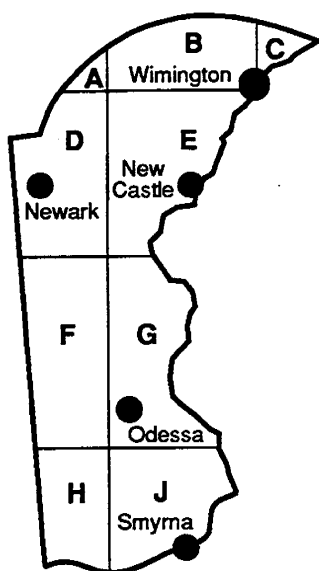
7K-A-122

- 7K-A-122 = State Site Number
 7 = Numerical prefix identifying the state of Delaware
 K = Kent County; NC = New Castle County; S = Sussex County
 A = Each county is divided into lettered divisions; letter A indicates the block in which the site is found in Kent County, Delaware
 122 = The 122nd site recorded in block A, Kent County, Delaware

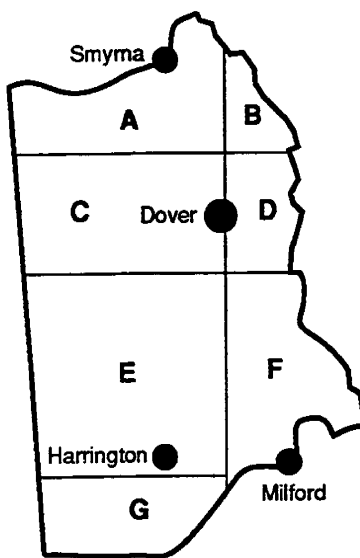
K-6507

- K-6507 = Cultural Resource Survey Number
 K = Kent County, Delaware; NC = New Castle County; S = Sussex County
 6507 = The 6507nd cultural resource inventoried in Kent County. Each cultural resource number ties into the aerial photos and management files on repository with the Delaware Division of Historical and Cultural Affairs, Dover, Delaware and/or The Island Field Museum and Research Center, South Bowers, Delaware.

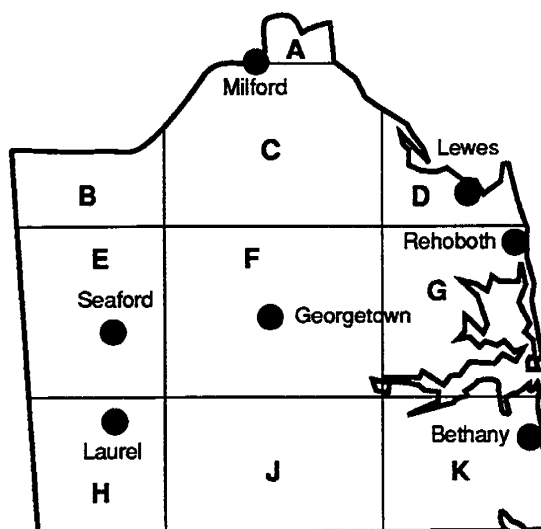
New Castle County -- 7NC



Kent County -- 7K



Sussex County -- 7S



APPENDIX III

GLOSSARY

Archaeology - The study of the people of the past through the recovery and analysis of the artifacts they left behind and their context.

Archival Research - Research done at places in which public or historical records, charters and documents are stored and preserved.

Artifact - Any object shaped or modified by man, or as a result of human activity.

Assemblage - The array of contemporary objects and associations found at an archaeological site.

Base Camp - A prehistoric dwelling site for hunter-gatherers from which resource procurement forays are made.

Bay/Basin Feature - Also known as whale wallows, these shallow ponds, thought to have been formed during the end of the Pleistocene, represent a favored prehistoric settlement location.

Biface - A stone tool that has been flaked on both sides.

Bifurcate - A projectile point from the Archaic Period (6500 B.C.), it is a small point with a notched base.

Cache - A collection of artifacts and/or ecofacts which have been deliberately stored for future use.

Cobble - Frequent lithic tool resource for prehistoric peoples.

Core - A piece of stone from which other pieces of stone are flaked off to make artifacts.

Cortex - Weathered exterior of a piece of lithic material, may be either vein or water-worn cortex.

Cross-section - A transverse of a portion of a feature, horizontally and vertically removing soil from one section.

Cryptocrystalline - Indistinctly crystalline; having an indistinguishable crystalline structure (i.e. - chert and jasper).

Culture - A uniquely human system of habits and customs acquired by man through a non-biological, uninherited process, learned by his society, and used as his primary means of adapting to his environment.

Curated Technology - When artifacts are reused and transported so often that they are rarely deposited in contexts which reflect their actual manufacture and use.

Debitage - Waste material from the manufacture of stone tools.

Diagnostic - Artifact with identifying traits that categorize the item to a specific time period.

Early Stage Biface Reject - A biface that never passed beyond the initial steps of stone tool production due to either flaws in the raw material or manufacturing error.

Extant - Still in existence.

Fall Line - A transition zone from the Piedmont Uplands to the flatter Coastal Plain.

Fallow Field - A plowed but unplanted field.

Faunal Remains - Animal remains from archaeological sites studied to learn of past foodways and the ecological relationships between humans and animals.

Feature - Any soil disturbance or discoloration that reflects human activity or an artifact that, being too large to remove from a site, normally is recorded only; for example, house, storage pits, etc. can also be a very dense collection of artifacts: for example, a lithic chipping feature.

Fire-cracked Rock - A rock that has fractured and/or discolored due to exposure to fire.

Flake - A piece of waste material from the manufacture of stone tools, caused by percussion or pressure applied to the object by an external agent (e.g. hammerstone, antler pressure flaker); flake itself may be further utilized as a tool (see "Debitage").

Foodways - The interrelated systems of food procurement, preparation, and consumption.

Grid - The 2-dimensional intersection network defining the squares in which archaeologists excavate.

Ground Stone Tool - A tool that has been produced by grinding or pecking.

Hammerstone - A rounded stone to be used as a hammer and which is sometimes grooved for hafting to a handle. Usually ungrooved, however, it has a variety of forms ranging from a crudely shaped sphere to a finely ground ovoid with a battered end.

Hell Island Ware - A Woodland I (A.D. 600 - A.D. 1000) conoidal shaped ceramic tempered with finely crushed quartz and mica inclusions, whose exterior surface may be fabric impressed or cord impressed.

Historical - The time period after the appearance of written records. In the New World, this generally refers to the time period after the beginning of European settlement at approximately 1600 A.D.

Historical Archaeology - The study of material culture in an historical perspective.

Humus - Soil, usually on top of the ground, that contains a large proportion of rotted and rotting vegetable material.

In Situ - In the original place.

Late Stage Biface Reject - A biface which was either broken during the later stages of manufacture, or which had been reduced improperly, so that further reduction would not produce a usable tool.

Lithic Artifact - Pertaining to or consisting of stone.

Loam - A loose soil composed of roughly equal parts of silt, clay and sand, especially a kind containing organic matter and of great fertility.

Locus - A defined archaeological site or testing location.

Macro-band Base Camp - For a hunter-gatherer society, an archaeological site one hectare or larger in area characterized by a wide variety of tool types, abundant ceramics, semi-subterranean house structures, storage pit features, and abundant debitage from tool manufacture and reduction.

Marcey Creek Plain - A Woodland I (1200 B.C. - 900 B.C.) ceramic tempered with crushed steatite characterized by flat-bottomed vessels made by modeling with lug handles sometimes used. The first true ceramics of Delaware.

Material Culture - That segment of man's physical environment which is purposely shaped by him according to culturally dictated plans.

Micro-band Base Camp - A component of macro-band, perhaps one or two extended families, which periodically operates independently of the macro-band group.

Minguannan Ware - A Woodland II (A.D. 1000 - A.D. 1600) ceramic tempered with sand, grit, and crushed quartz whose surface treatment includes smoothed surfaces, corded surfaces, and smoothed-over-corded surfaces. Decorations include incising, cord-wrapped-stick, and direct cord impressions.

Mitigate - To make or become less severe or intense by excavating.

Mitigation - In archaeology, refers to minimizing the destruction or disturbance of an archaeological site by a construction project, erosion, farming practices or the like, through excavation of the site and recovery of the information about past life that it contains.

Mockley Ware - A Woodland I (A.D. 110 - A.D. 1000) conoidal shaped ceramic tempered with oyster shell or ribbed mussel whose exterior surface may be smoothed, cord marked, or net impressed.

Notched Point - Areas cut into a point which were used to bind the point to a shaft.

Pedestrian Survey - The walking and collecting of an archaeological site without the excavation of subsurface units.

Phase I - Determination of the absence or presence of a site.

Phase II - Further investigation of a site to define its limits and integrity for National Register eligibility.

Physiographic Zone - Regions or areas that are characterized by a particular geography, geology, and topography.

Piedmont Region - An area of gently rolling to hilly land lying between the Appalachian Mountains and the Atlantic Coastal Plain. The division between the Piedmont Region and the Coastal Plain is marked by the Fall Line.

Plow Zone - In a plowed field, the upper layer of organic soil which is continually reworked by the plow. In the Middle Atlantic region this is about 8-12 inches thick.

Post Mold - The organic stain in the ground which is left by a decayed wooden post. A postmold stain may occur inside of a posthole stain on an archaeological site.

Prehistoric - The time period before the appearance of written records. In the New World this generally refers to indigenous, pre-Contact societies.

Procurement Site - A place that is visited because there is a particular item to acquire; i.e., lithic outcrops.

Profile - A side view of a feature or test unit.

Projectile Point - Strictly speaking, a biface attached to the head of an airborne item of weaponry, like an arrow or a thrown dart; frequently used indiscriminately when referring to any biface.

Rejects - Stone tools which have been thrown away due to manufacturing or material flaws.

Sherd - A piece of broken pottery.

Site - A space of ground containing evidence of human occupation that archaeologists select for their dig.

Socioeconomic - Applies to the inter-relationship between economic wealth (or poverty) and social position or status.

Soil Horizon - Soils are divided in 3 horizons, which reflect different kinds of chemical and physical processes that have resulted from changing climatic conditions.

Staging Site - A temporary camp where preparations are made for another operation such as a hunting foray.

Stemmed Point - A point that has an obvious area which was used to bind or haft a point to a shaft.

Strata - The various layers of human or geological origin which comprise archaeological sites.

Stratigraphy - The examination of the soil layering on an archaeological site; the characteristics of each individual stratum and its relationship to others in the sequence is critical to understanding the temporal and spatial characteristics of the site.

Subsoil - Sterile, naturally occurring soils not changed by human occupation.

Subsurface - Below the surface, not visible from the surface.

Surface Collection - Act of walking along a surface such as an open field or plowed field, and collecting artifacts seen on the surface of the ground.

Temper - The foreign material introduced into clay to keep pottery from cracking when fired; also known as "grog".

Townsend Ware - A Woodland II (A.D. 1000 - A.D. 1650) ceramic tempered with crushed shell with fabric-impressed exterior surfaces. Decorations include incising, cord-wrapped stick and direct cord designs.

Transect - A single strip of land crossing an area possibly containing an archaeological site. Archaeologists may search a transect rather than survey the whole area.

Transect Sampling - A means of archaeological research design in which the sampling element is a square or rectangular grid.

Wolfe Neck Ware - A Woodland I (700 B.C. - 400 B.C.) conoidal shaped ceramic tempered with crushed quartz whose exterior surface may be cord marked or net impressed.